An Absolute Beginner's Guide to

Raising Backyard DUCKS

Gail Damerow

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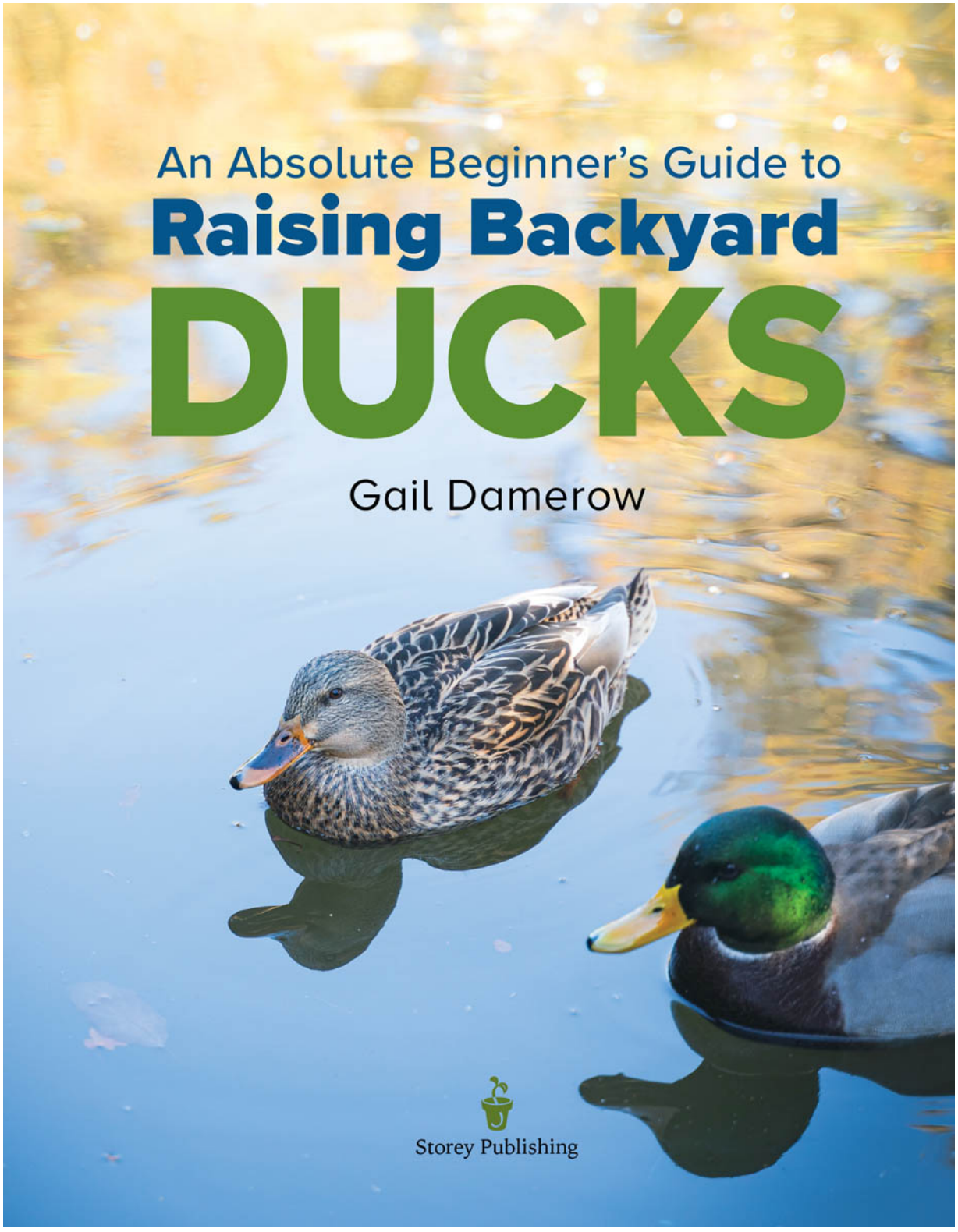
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Storey Publishing

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Ebook production by Slavica A. Walzl

Ebook version 1.0
February 14, 2023

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210 MASS MoCA Way

North Adams, MA 01247

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Storey Publishing, LLC is an imprint of Workman Publishing Co., Inc., a subsidiary of Hachette Book Group, Inc., 1290 Avenue of the Americas, New York, NY 10104

ISBNs: 978-1-63586-529-5 (paperback), 978-1-63586-530-1 (ebook)

LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA ON FILE

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WHY DUCKS?

Since you have this book in hand, you probably don't need a pep talk on the advantages of keeping ducks. However, if you're still on the fence about whether or not duck keeping is for you, you've come to the right place. Here you'll find the

basics of how to prepare for keeping ducks and what you can expect as a novice duck keeper. And if you need an extra nudge, here are some of the benefits of keeping ducks:

- **They are low maintenance.** They require little in terms of housing. They forage for much of their own food. They are subject to few diseases and virtually no body parasites.
- **Ducks are easy to control.** They like to move in a group, making them easy to herd. Once they learn the daily routine, they don't need constant reminders.
- **Ducklings grow fast.** They require less time under brooder heat than most other backyard poultry.
- **Ducks are suited to a wide range of climates.** They are both heat tolerant and cold hardy, and they don't mind wet weather. In fact, they love it.
- **They are excellent at pest control.** They love foraging in the garden for slugs, snails, grasshoppers, potato beetles, and more. In a pond they are good at controlling mosquito larvae, as well as duckweed and other unwanted vegetation.
- **Ducks produce copious amounts of high-nitrogen fertilizer.** Waste gleaned from a duck coop makes excellent compost. Duck pool water may be drained into the garden as liquid fertilizer.
- **Duck eggs are delicious and nutritious.** They are about 30 percent larger than chicken eggs. And some duck breeds lay as well as, or better than, layer chicken breeds.
- **Duck meat is excellent and inexpensive to produce.** Because ducks are fast growers and good foragers, they can be ready

for the table at much less cost than most other poultry.

- **Ducks are gentle.** They hardly ever fight with one another, and rarely if ever attack humans. In fact, they readily become attached to their human handlers.
- **Ducks are attractive.** Swimming in a pond or just wandering around the yard, ducks add an elegant touch to any backyard.
- **Ducks are fun!** Watching their antics can provide endless hours of entertainment. Lots of people have ducks simply for the joy of it.
- **Ducks and chickens can coexist.** If you are coming to ducks from the perspective of a chicken keeper, you might be surprised at how well the two species get along in spite of their differences.

—Gail Damerow

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WHAT ARE THE BEST DUCK BREEDS?

With so many duck breeds to choose from, figuring out where to start can seem daunting. But by first deciding *why* you want ducks, you can whittle down the number of candidates, making the decision much easier.

If your purpose is strictly for eggs, choose a breed developed specifically for egg production. Most ducks lay eggs that are larger than a "large" (2-ounce) chicken egg. Pure breeds are discussed in this chapter. You'll find information about hybrid layers in Chapter 8.

If your primary purpose is to grow your own roasting ducks, select a heavy breed developed for meatiness. Breeds with all or mostly white plumage are popular as meat birds because they are the easiest to pluck clean. You'll find information on hybrid meat ducks in Chapter 10.

Maybe you would like a self-sustaining homestead flock that produces both eggs and meat. You might want to hatch ducklings each spring, harvest the surplus drakes (males), and keep or sell some of the layers. In that case you would want a breed developed for both eggs and meat. Good options are any of the breeds identified in this chapter as heritage, which are described as being sustainable by The Livestock Conservancy (an organization dedicated to protecting endangered breeds of livestock and poultry from extinction). With this sort of dual-purpose breed you won't get as many eggs as you would from a strictly egg breed, and the birds won't be as meaty as a strictly meat breed, but for homestead purposes they are a good compromise.

Most heritage breeds, as identified by The Livestock Conservancy, would be a good choice for a multipurpose bird.

Say your primary purpose is to get involved in exhibition poultry. In that case you'll want a breed that has been

standardized by the American Poultry Association (APA) and/or the American Bantam Association (ABA), both of which sponsor sanctioned shows.

If you're looking for a few backyard pets, temperament will be an important consideration. Calm or docile ducks are much more fun to be around than excitable breeds. On the other hand, if you spend enough time with your ducklings, any breed will learn to be calmer and more trusting.

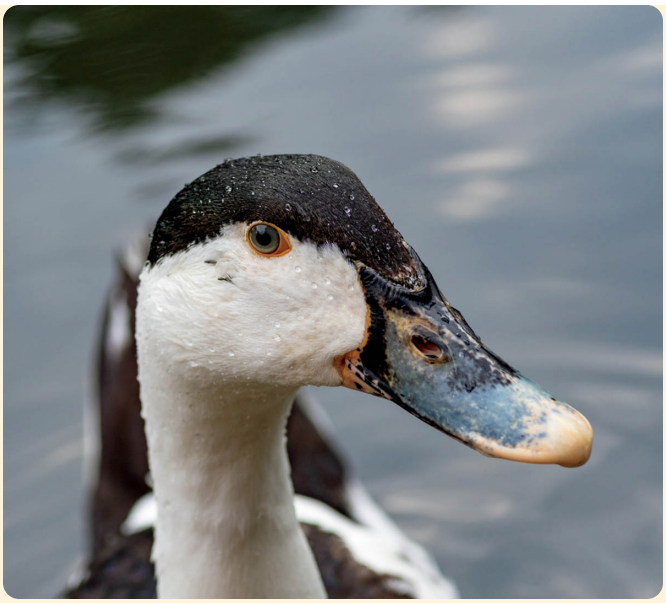
Once you've selected a few breeds based on your purpose in having ducks, the remaining features are basically matters of personal preference. The following photos and descriptions will help you make your decision. Note that statistics such as eggs per year and live weight are overall breed averages; individual strains (bloodlines) may vary from the averages.

HERITAGE DUCKS

Heritage ducks, as designated by The Livestock Conservancy, are breeds that have the following characteristics:

- They have a long history in the United States.
- They are a true genetic breed.
- They are an endangered breed (appearing on the organization's Conservation Priority List).
- They have purebred status.

Heritage breeds tend to have important traits such as good mothering instincts, longevity, hardiness, foraging ability, and adaptability to various (and sometimes extreme) environments.



ABOVE: *Ancona*

ABOVE: *Khaki Campbells*

ABOVE: *Runner*

Mallard-Derived Breeds

Ducks are members of the waterfowl family (Anatidae). Domestic ducks are mostly in the genus of dabbling ducks (*Anas*), which includes the ancestor of most domestic breeds—the wild mallard. Many domestic mallard-derived breeds are bred to be larger than mallards.

Note: “Mallard” with a capital M refers to a domestic breed of duck developed in captivity (see here). The lowercase “mallard” refers to the wild species.

The following profiles include the breeds you are most likely to find in the United States. The characteristics described for each are typical for the breed, although they vary somewhat from one flock to another.

Ancona

Anconas are black and white, or any combination of color and white, with an irregular splotchy pattern, like a Holstein cow that quacks. They are among the best layers.

ABOVE: *drake*

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	210 to 280

AT A GLANCE	
EGG SIZE	Medium to large
EGG SHELL COLOR	White, ivory, blue-green, speckled
LIVE WEIGHT	5 to 7 pounds
MEAT QUALITY	Lean
GROWTH RATE	Rapid
FORAGING	Excellent
TEMPERAMENT	Calm
FLY	Rarely
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	Not standardized
HERITAGE	Yes
ORIGIN	New York, 1910s

Appleyard

The Appleyard is similar to a Mallard, but lighter in color. Because of its silvery hue this breed is often called Silver Appleyard. Males become paler and females darker as they age.

ABOVE: *RIGHT: drake*

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	120 to 175
EGG SIZE	Large
EGG SHELL COLOR	White (sometimes blue)
LIVE WEIGHT	7 to 9 pounds

AT A GLANCE	
MEAT QUALITY	Lean
GROWTH RATE	Rapid
FORAGING	Good
TEMPERAMENT	Extremely calm
FLY	Rarely
BROODY	Yes
MOTHERING	Generally good
EXHIBITION	APA (heavy weight class)
HERITAGE	Yes
ORIGIN	England, 1930s

Aylesbury

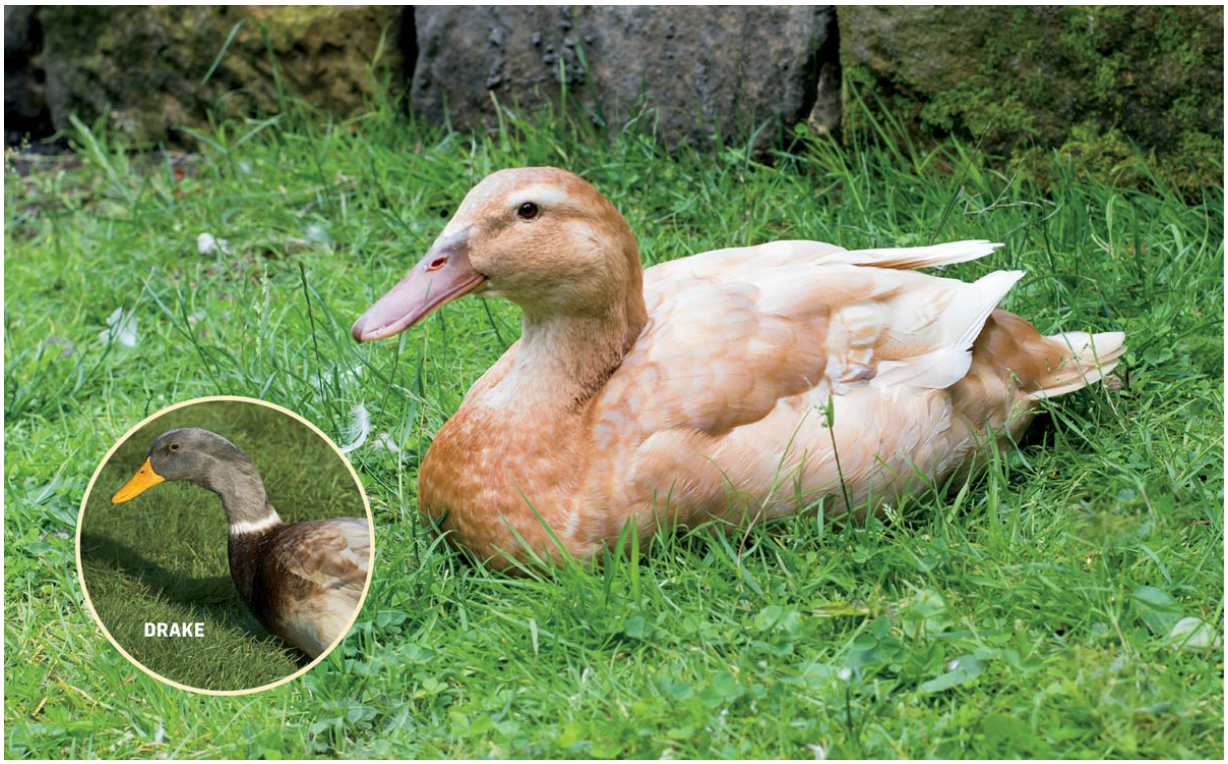
The Aylesbury has white feathers and a pink bill. This breed is unusual in having white skin rather than yellow.

AT A GLANCE	
UTILITY	Meat
EGGS PER YEAR	35 to 125
EGG SIZE	Largest
EGG SHELL COLOR	White or pale green

AT A GLANCE	
LIVE WEIGHT	9 to 10 pounds
MEAT QUALITY	Superior
GROWTH RATE	Extremely rapid
FORAGING	Fair
TEMPERAMENT	Extremely calm
FLY	No
BROODY	Yes
MOTHERING	Variable
EXHIBITION	APA (heavy weight class)
HERITAGE	Yes
ORIGIN	England, 1700s

Buff

The Buff duck has golden buff plumage. The drake's head is seal brown and his bill is yellow, while the hen's is brown to orange. Buffs are quieter and less flighty than most breeds.



AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	130 to 180
EGG SIZE	Large
EGG SHELL COLOR	White or pale green-gray

AT A GLANCE	
LIVE WEIGHT	5 to 7 pounds
MEAT QUALITY	Good
GROWTH RATE	Rapid
FORAGING	Good
TEMPERAMENT	Fairly calm
FLY	Rarely
BROODY	Rarely
MOTHERING	Good to fair
EXHIBITION	APA (medium weight class)
HERITAGE	Yes
ORIGIN	England (where it is called Buff Orpington duck), early 1900s

Campbell

The Campbell duck may have khaki, white, dark, or pied plumage. The drake has a green head. These ducks are among the best layers and are adaptable to a wide range of climates.

ABOVE: *RIGHT: drake*

AT A GLANCE	
UTILITY	Eggs
EGGS PER YEAR	165 to 210
EGG SIZE	Medium to large
EGG SHELL COLOR	White or pale green
LIVE WEIGHT	3 ½ to 4 ½ pounds

AT A GLANCE	
MEAT QUALITY	Good
GROWTH RATE	Slow
FORAGING	Excellent
TEMPERAMENT	Excitable
FLY	Sometimes
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	APA (light weight class, khaki color only)
HERITAGE	Yes
ORIGIN	England, late 1800s

Cayuga

These hardy and versatile ducks have green heads and dark, strikingly iridescent feathers that mottle with white as the bird ages. The bill, legs, and feet are black.

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	100 to 150
EGG SIZE	Medium to large

AT A GLANCE	
EGG SHELL COLOR	White; covered by black/gray film early in the laying season
LIVE WEIGHT	7 to 8 pounds
MEAT QUALITY	Excellent
GROWTH RATE	Rapid
FORAGING	Excellent
TEMPERAMENT	Extremely excitable
FLY	No
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	APA (medium weight class)
HERITAGE	Yes
ORIGIN	New York, 1800s

Crested

Crested ducks come in many color varieties and sport a pom-pom of feathers on the back of the head. The crested gene results in a gap in the skull that can disrupt the duck's sense of balance.

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	100 to 130
EGG SIZE	Large

AT A GLANCE	
EGG SHELL COLOR	White
LIVE WEIGHT	6 to 7 pounds
MEAT QUALITY	Excellent
GROWTH RATE	Rapid
FORAGING	Fair
TEMPERAMENT	Extremely excitable
FLY	Rarely
BROODY	Occasionally
MOTHERING	Fair to poor
EXHIBITION	APA (medium weight class, black or white only)
HERITAGE	No
ORIGIN	Holland, 1600s

Duclair

Similar in type to the Rouen, the Duclair comes in white, blue, or black varieties; color varieties have a white bib. The meat is among the best-flavored duck.

ABOVE: *RIGHT: drake*

AT A GLANCE	
UTILITY	Meat (white variety eggs and meat)
EGGS PER YEAR	80 to 100 (white variety 130 to 200)

AT A GLANCE	
EGG SIZE	Medium to large
EGG SHELL COLOR	Green or blue
LIVE WEIGHT	6 to 7 pounds
MEAT QUALITY	Superior
GROWTH RATE	Rapid
FORAGING	Excellent
TEMPERAMENT	Docile
FLY	No
BROODY	Yes
MOTHERING	Fair to good
EXHIBITION	Not standardized
HERITAGE	No
ORIGIN	France, ancient

Magpie

The Magpie is white with black, blue, or other color patches on the head and back. These ducks have an upright stance, similar to the Runner. They are excellent layers.

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	220 to 290
EGG SIZE	Medium to large
EGG SHELL COLOR	White

AT A GLANCE	
LIVE WEIGHT	4 to 5 pounds
MEAT QUALITY	Lean
GROWTH RATE	Slow
FORAGING	Excellent
TEMPERAMENT	Excitable
FLY	Yes, if startled
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	APA (light weight class)
HERITAGE	Yes
ORIGIN	Wales, 1900s

Pekin

With its white plumage and bright yellow bill and feet, the Pekin is the breed most people picture when they hear the word “duck.” It is the largest dabbling breed.

AT A GLANCE	
UTILITY	Meat
EGGS PER YEAR	100 to 180
EGG SIZE	Largest

AT A GLANCE	
EGG SHELL COLOR	White
LIVE WEIGHT	8 to 10 pounds (Jumbo Pekins 9 to 13 pounds)
MEAT QUALITY	Fatty
GROWTH RATE	Extremely rapid
FORAGING	Fair
TEMPERAMENT	Excitable
FLY	No
BROODY	Rarely
MOTHERING	Poor, but variable
EXHIBITION	APA (heavy weight class)
HERITAGE	No
ORIGIN	China, ancient

Rouen

Rouens look like overstuffed Mallards. They come in two types: The exhibition type is bigger and less active, while the slimmer production type is a better forager and layer.

ABOVE: *RIGHT: drake*

AT A GLANCE	
UTILITY	Meat
EGGS PER YEAR	125 to 160 (exhibition type 35 to 125)

AT A GLANCE	
EGG SIZE	Large
EGG SHELL COLOR	White or pale blue-green
LIVE WEIGHT	5 to 7 pounds (exhibition type 9 to 10 pounds)
MEAT QUALITY	Lean
GROWTH RATE	Slow
FORAGING	Good
TEMPERAMENT	Excitable (exhibition type calm)
FLY	Rarely
BROODY	Yes, but the heavy hen may break eggs in the nest
MOTHERING	Variable
EXHIBITION	APA (heavy weight class)
HERITAGE	Yes
ORIGIN	France, ancient

Runner

(a.k.a. Indian Runner)

A bottle-shaped body and upright stance set Runners apart. They also come in more different plumage colors than any other breed. They are more agile than other breeds, preferring to run than waddle.

AT A GLANCE	
UTILITY	Eggs
EGGS PER YEAR	100 to 180

AT A GLANCE	
EGG SIZE	Medium
EGG SHELL COLOR	Blue-green or white
LIVE WEIGHT	3 ½ to 4 ½ pounds
MEAT QUALITY	Similar to wild duck
GROWTH RATE	Slow
FORAGING	Outstanding
TEMPERAMENT	Fairly excitable
FLY	No
BROODY	Rarely
MOTHERING	Fair to poor
EXHIBITION	APA (light weight class)
HERITAGE	Yes
ORIGIN	Southeast Asia, ancient

Saxony

The Saxony drake's plumage pattern is similar to a Mallard's but more muted; the duck is buff with silvery blue wings. This breed is adaptable to a wide range of climates.

ABOVE: *RIGHT: drake*

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	110 to 190
EGG SIZE	Large
EGG SHELL COLOR	White or pale green-gray
LIVE WEIGHT	6 ½ to 8 ½ pounds
MEAT QUALITY	Lean

AT A GLANCE	
GROWTH RATE	Slow
FORAGING	Good
TEMPERAMENT	Extremely calm
FLY	No
BROODY	Likely
MOTHERING	Variable
EXHIBITION	APA (heavy weight class)
HERITAGE	Yes
ORIGIN	Germany, 1900s

Swedish

The Swedish duck appears in several color varieties. The most common variety is blue with a white bib, giving this duck the common name of Blue Swedish. Mating two blue Swedish ducks results in 25 percent black, 25 percent silver or splash, and 50 percent blue ducklings; to get 100 percent blue ducklings, breed a black to a silver.

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	100 to 150

AT A GLANCE	
EGG SIZE	Large
EGG SHELL COLOR	White, pale blue, or pale green-gray
LIVE WEIGHT	6 ½ to 8 pounds
MEAT QUALITY	Superior
GROWTH RATE	Slow
FORAGING	Good
TEMPERAMENT	Fairly calm
FLY	No
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	APA (medium weight class)
HERITAGE	Yes
ORIGIN	Pomerania, 1800s

Welsh Harlequin

The Welsh Harlequin is similar in body type to the Campbell. Its color patterns are silver and the less common gold, with male plumage somewhat like that of a Mallard and females much lighter. This breed lacks a strong sense of self-preservation, making it vulnerable to predators and bad weather.

ABOVE: *RIGHT:* *drake*

AT A GLANCE	
UTILITY	Eggs and meat
EGGS PER YEAR	100 to 150
EGG SIZE	Medium to large
EGG SHELL COLOR	White or pale green

AT A GLANCE	
LIVE WEIGHT	4 1/2 to 5 1/2 pounds
MEAT QUALITY	Lean
GROWTH RATE	Slow
FORAGING	Good
TEMPERAMENT	Extremely calm
FLY	No
BROODY	Yes
MOTHERING	Good to fair
EXHIBITION	APA (light weight class)
HERITAGE	Yes
ORIGIN	Wales, 1940s

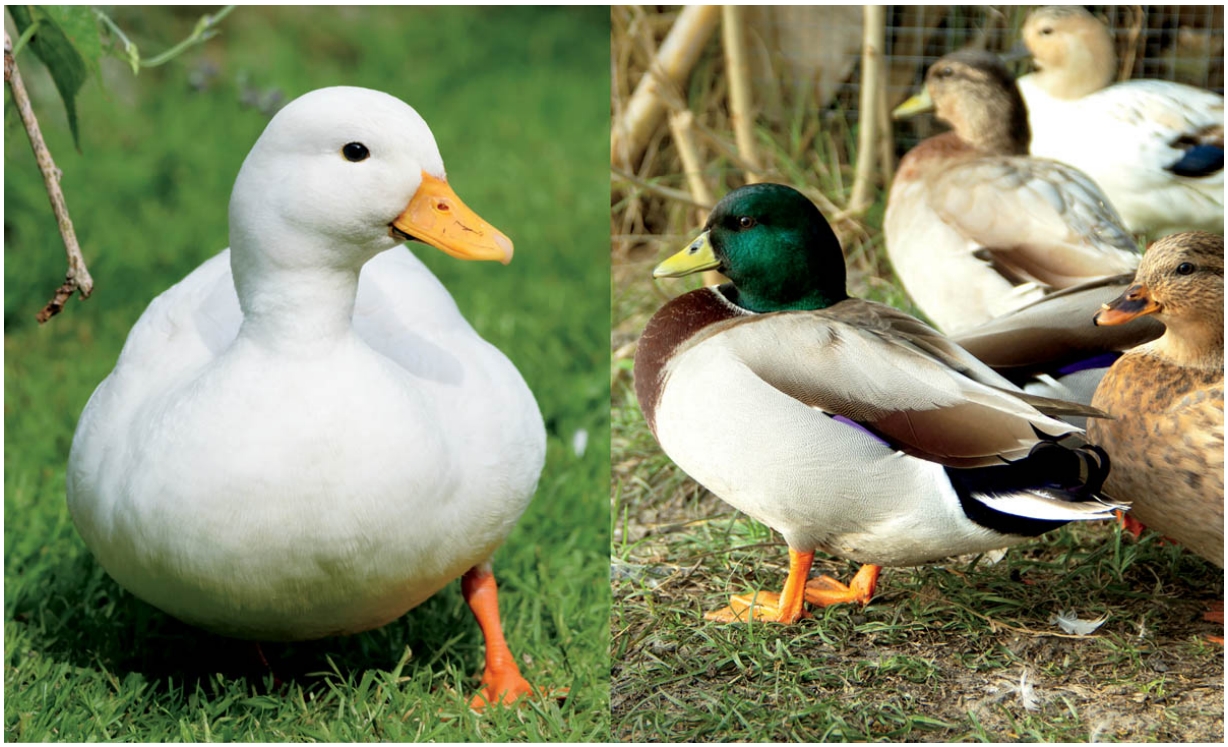
Mallard-Derived Bantam Breeds

While the larger ducks described in the previous section are bred mainly for their utility value, the smaller bantam ducks are bred primarily as pets, for exhibition, and as ornamentals. They are a good fit for anyone with limited space. However, they fly really well. To keep them home, you'll need to clip their wings, as described in Chapter 7.

Alternatively, they may be kept in a covered pen, which also protects them from aerial predators, to which they are especially vulnerable because of their small size. Also because of their size, bantam ducklings are delicate and require extra care during their first few weeks.

Call

Calls are the smallest domestic duck breed (the ducklings are especially delicate), but one of the noisiest. They were once used by duck hunters as live decoys. Call ducks have tiny, round bodies and short bills. Originally they were similar in color to the Mallard; numerous color varieties have since been developed.



ABOVE: *RIGHT:* drake

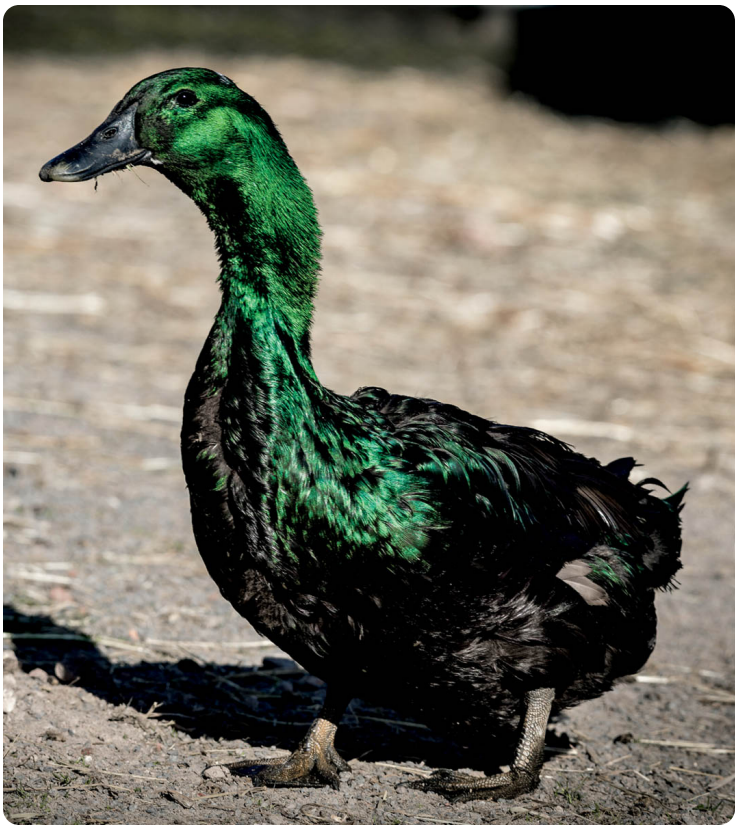
AT A GLANCE

UTILITY Ornamental

AT A GLANCE	
EGGS PER YEAR	25 to 75
EGG SIZE	Smallest
EGG SHELL COLOR	White, pale green, or pale blue
LIVE WEIGHT	1 to 2 pounds
MEAT QUALITY	Meager but tasty
GROWTH RATE	Slow
FORAGING	Excellent
TEMPERAMENT	Friendly and inquisitive
FLY	Yes
BROODY	Rarely
MOTHERING	Good
EXHIBITION	APA and ABA (bantam class, several color varieties); Calls are the most popular duck breed for show
HERITAGE	No
ORIGIN	Holland, 1600s

East Indie

This relatively quiet breed is a smaller version of the Cayuga, with the same iridescent green-black feathers.



AT A GLANCE	
UTILITY	Ornamental
EGGS PER YEAR	40 to 100
EGG SIZE	Small

AT A GLANCE	
EGG SHELL COLOR	White, green, or blue; covered by black/gray film early in the laying season
LIVE WEIGHT	1 to 2 pounds (some strains may reach 6 pounds)
MEAT QUALITY	Meager but tasty
GROWTH RATE	Slow
FORAGING	Excellent
TEMPERAMENT	Docile
FLY	Yes
BROODY	Occasionally
MOTHERING	Good
EXHIBITION	APA and ABA (bantam class)
HERITAGE	No
ORIGIN	United States, 1800s

DUCK TALE

Ducks I Have Known

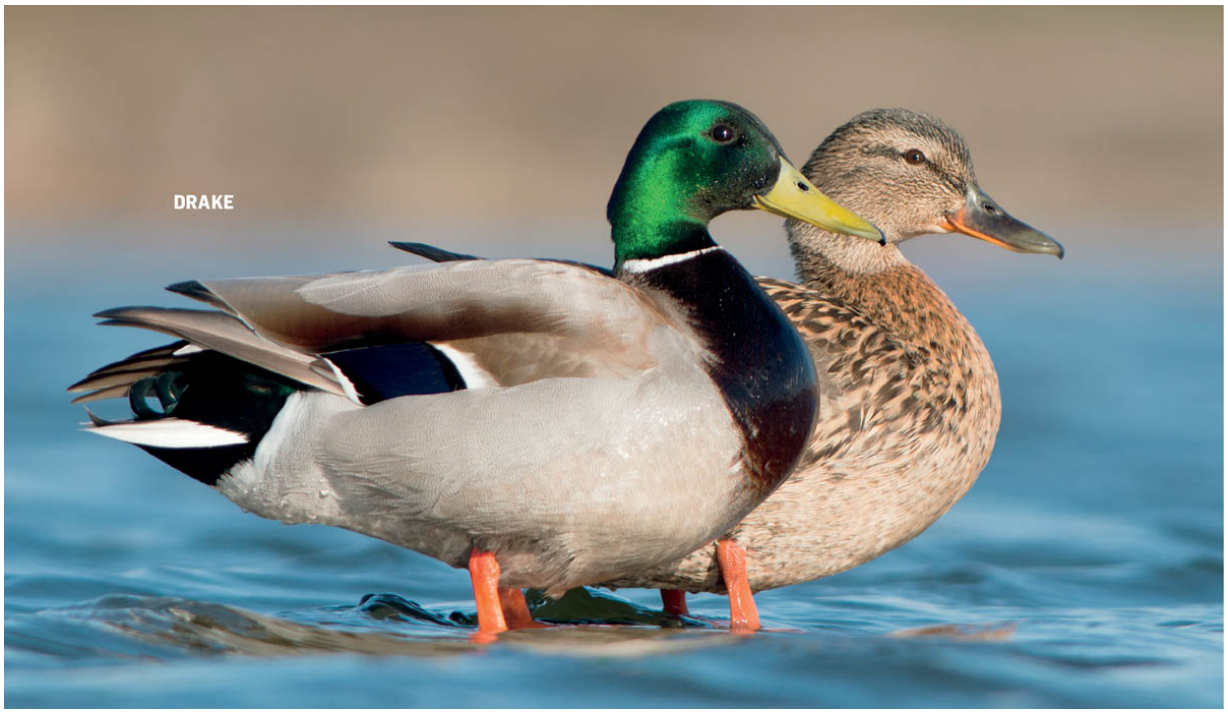
My first ducks were Mallards, only because they came with a house I moved into. Then someone gave me a pair of white Muscovies. Later we moved to Tennessee, where I acquired more Mallards. And more Muscovies, this time black with white bibs. When those Muscovies sat side by side in the coop doorway, they reminded me of nuns in a pew.

Later I decided to try Khaki Campbells, which laid a fair number of eggs and turned out to be a good roasting size for two people. I've also raised Pekins and Rouens, mostly for meat. At one time I entertained the idea of getting some cute little Calls, but my husband vetoed the plan, since our duck pond is right outside our bedroom window and Calls are named after what they do best.

ABOVE: *Among other breeds, I've raised Pekins and Rouens, which are good meat birds.*

Mallard

Male Mallards are gray with a green head (giving this breed its alternative name of Greenhead); females are shades of brown. This breed is the ancestor of all other domestic ducks except Muscovies.



AT A GLANCE

UTILITY Ornamental; meat

Note: Domestically hatched ducklings must bear identification, such as by clipping the back toe of newly hatched ducklings, to prove they aren't captured wild ducks.

AT A GLANCE	
EGGS PER YEAR	60 to 120
EGG SIZE	Small
EGG SHELL COLOR	Greenish blue or white
LIVE WEIGHT	2 ½ to 3 pounds
MEAT QUALITY	Lean, similar to wild duck
GROWTH RATE	Slow
FORAGING	Excellent
TEMPERAMENT	Fairly excitable
FLY	Yes
BROODY	Yes
MOTHERING	Excellent
EXHIBITION	APA and ABA (bantam class, gray and snowy varieties)
HERITAGE	No
ORIGIN	Native to Northern Hemisphere

Note: Domestically hatched ducklings must bear identification, such as by clipping the back toe of newly hatched ducklings, to prove they aren't captured wild ducks.

CAPTIVE-REARED MALLARD DUCKS

According to the US Code of Federal Regulations (50 CFR 21.13):

> *Captive-reared and properly marked mallard ducks, alive or dead, or their eggs may be acquired, possessed, sold, traded, donated, transported, and disposed of by any person without a permit, subject to the following conditions, restrictions, and requirements:*
>
> **A.** *Nothing in this section shall be construed to permit the taking of live mallard ducks or their eggs from the wild.*
>
> **B.** *All mallard ducks possessed in captivity, without a permit, shall have been physically marked by at least one of the following methods prior to 6 weeks of age and all such ducks hatched, reared, and retained in captivity thereafter shall be so marked prior to reaching 6 weeks of age.*
>
> **1.** *Removal of the hind toe from the right foot.*
>
> **2.** *Pinioning of a wing: Provided, That this method shall be the*

removal of the metacarpal bones of one wing or a portion of the metacarpal bones which renders the bird permanently incapable of flight.

3. *Banding of one metatarsus with a seamless metal band.*

4. *Tattooing of a readily discernible number or letter or combination thereof on the web of one foot.*

C. *When so marked, such live birds may be disposed of to, or acquired from, any person and possessed and transferred in any number at any time or place: Provided, That all such birds shall be physically marked prior to sale or disposal regardless of whether or not they have attained 6 weeks of age.*

Muscovy Ducks

Unlike most other domestic duck breeds, Muscovy ducks are not in the genus of dabbling ducks (*Anas*) but in the genus of perching ducks (*Cairina*). They like to perch in trees and on top of fences. The latter can pose a problem if they don't fly back down on their own side of the fence.

In the Central and South American tropics, where Muscovies originated, spending a lot of time in water is extremely dangerous because it makes ducks vulnerable to the likes of jaguars and caimans. Instead of swimming, Muscovies therefore travel by flying from tree to tree. A Muscovy's tail, which is longer than that of other domestic ducks, serves as a rudder for quick and accurate landing on tree branches.

In other ways, too, the appearance of Muscovies is distinctly different from that of other domestic duck breeds: Their faces are covered by bright red fleshy lumps called caruncles, which are more massive on males than on females. Muscovy males are much bigger than any other duck. And as the drakes age, they take on a distinctive musky odor. The breed is therefore sometimes known as "musk duck."

Muscovies have strong wings for flying and sharply clawed toes for climbing and perching. They typically don't like being handled. When you carry a Muscovy, you must be careful not to get whacked by a wing or sliced by a claw. Further, the drakes are territorial and can become aggressive. To make up for the male's potential bad temperament, the female Muscovy is extremely sweet.

Muscovies will interbreed with other domestic ducks, but the resulting offspring are mules. Although these sterile hybrids cannot reproduce, they are often bred for their exceptionally fine meat.

Because of concerns about feral Muscovies in the environment, the US Fish and Wildlife Service (FWS) prohibits the release of domestic Muscovies into the wild. Other regulations may also pertain. For information on current regulations, check with your local FWS office, which you can locate through the national service's website.

Muscovy

Muscovies appear in many plumage colors, most commonly black and white or all white, with a bright red warty face mask. The male's mask is more pronounced. Muscovies raise their head feathers when they get excited or nervous; they bob their heads and wag their tails more than other ducks.

ABOVE: *drake*

AT A GLANCE	
UTILITY	Meat
EGGS PER YEAR	50 to 125
EGG SIZE	Medium

AT A GLANCE	
EGG SHELL COLOR	Waxy white
LIVE WEIGHT	females 6 to 7 pounds; males 10 to 15 pounds
MEAT QUALITY	Extremely lean
GROWTH RATE	Rapid
FORAGING	Outstanding
TEMPERAMENT	Females are extremely calm; males can be aggressive
FLY	Yes (females more than males)
BROODY	Yes
MOTHERING	Excellent
EXHIBITION	APA (heavy weight class)
HERITAGE	No
ORIGIN	Native to Central and South America

2

WHY DOES A DUCK DO THAT?

One of the things that make ducks so much fun is their peculiar behavior. The ducky activities that make us humans laugh out loud may seem odd, but ducks do what they do for a reason, and a lot of it involves maintaining flock cohesion for self-preservation. Understanding why ducks do what they do

doesn't take the fun out of it but instead enriches our enjoyment.

Duck Quacks

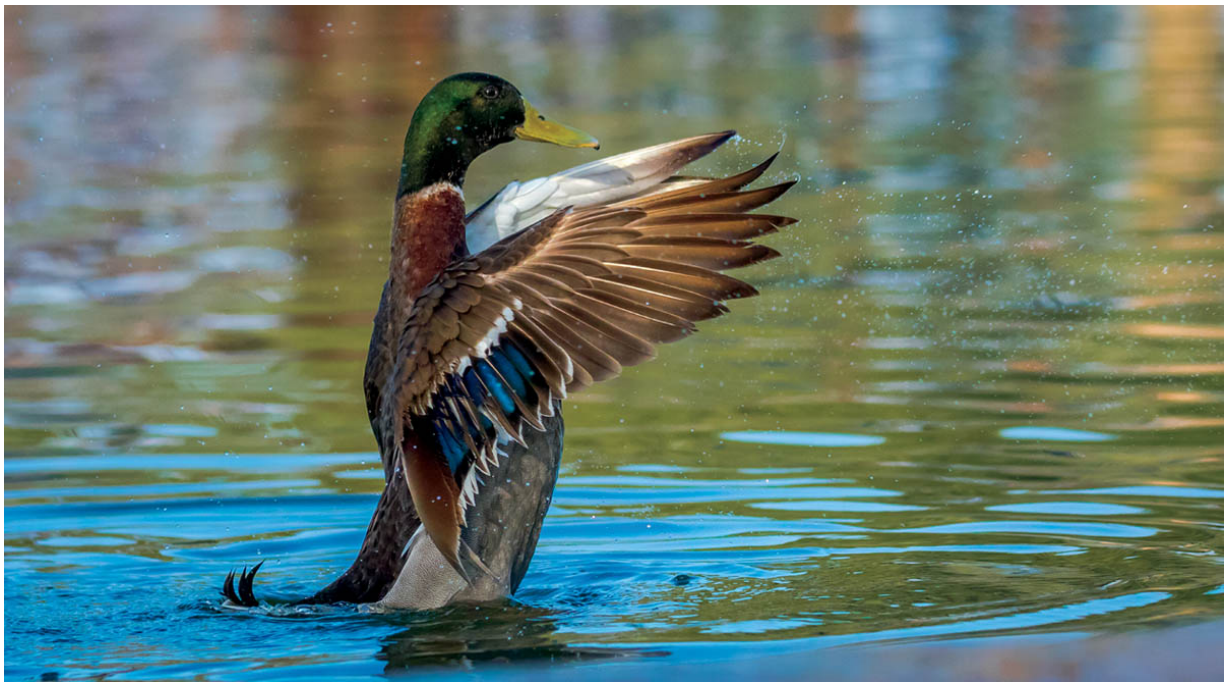
Ducks make a lot of different sounds, starting when a setting hen communicates with her future offspring before they hatch. Many attempts have been made to develop a scientific and definitive list of all the sounds ducks make and determine exactly what a duck intends to convey with each utterance. Still, plenty of ducky expressions are clearly recognizable by anyone taking time to listen. You can even learn to "speak" to your ducks by uttering appropriate quacks.

Soft quack. Female ducks often quack softly, whistle, and otherwise mutter while foraging or just meandering around. It's a duck's way of keeping in touch with the rest of the flock so everyone sticks together as the group travels around the yard.

Noisy quack. Ducks quack more loudly when they anticipate something good on the way, such as being let out of their coop in the morning or seeing the treat bucket coming. Duck keepers call it the happy quack, and indeed, a whole series of books has been written about a duckling named Happy Quack.

ABOVE: *Most duck breeds are fairly vocal, especially if they are anticipating food or reacting to an alarming situation.*

Insistent quack. A loud repeated quacking, especially when voiced by more than one duck, indicates something has alarmed the ducks. It could be a ground predator, an aerial predator, or anything amiss in their yard. This sound is variously called the warning quack or alarm quack, although often it's a false alarm. Well, at least it seems false to us humans. To calm a false-alarmed flock, or any duck that's experiencing similar distress, many duck keepers will imitate muttering or happy quacks.



ABOVE: *Drakes flash their wing and tail colors as part of the mating ritual.*

Drake Sounds

Drakes are rarely loud. Most of the time a drake's voice sounds like a hoarse whisper (similar to a person with laryngitis). But drakes make a number of other sounds, most of which relate to either dominance or mating. For example, just before or after mating a drake in water will lift his wings and tail to flash his colors and follow up with a loud whistle. A drake showing off to the hens may arch his neck, whistle, and then grunt. These displays take mere seconds and can easily be missed if you aren't paying attention.

Muscovy Sounds

Muscovies differ from mallard-derived breeds in the sounds they make. Rather than quack, the Muscovy hen makes a soft, musical cooing sound—unless she's startled, in which case she can let out a loud, sharp quack. The Muscovy drake, on the other hand, hisses. When he's trying to get the attention of his mate, he makes a breathy *huq-huq-huq* sound. Because Muscovies are so quiet, they are often called quackless or mute ducks.

Social Posturing

Ducks do a lot of social posturing that may be compared to human body language. And just like learning to read human body language, you can learn to read a duck's social posturing. Some duck keepers go so far as to imitate duck behavior while communicating with their flock.

Tail Wagging

Ducks wag their tails a lot. Muscovies, especially drakes, wag their tails more than other ducks, and in this respect they are often compared to puppies. Among other reasons, ducks might wag their tails as a greeting, as a sign of sexual arousal, or to indicate that some unpleasant encounter has been successfully resolved. After a drake mates a hen, she'll wag her tail. Just before a duck starts preening, it wags its tail. A duck that's

excitedly anticipating a welcome event, such as receiving a treat or being let out to forage, will wag its tail. A tail-wagging duck is friendly and nonthreatening.

ABOVE: *This young duck wags her tail as she approaches the pool for a swim.*

Crest Raising

A Muscovy that's excited or angry will raise its head feathers to create a sort of crest. The drake, being larger to start with, raises a higher crest than the hen. At the same time he may alternately jerk in and bob out his head. The rapidity of jerking

and bobbing indicates his degree of anger or fear. Crest raising and head bobbing are also signs of sexual arousal.

Head Bobbing

Slow head bobbing is often used as a form of social greeting. A duck that reunites with her flock after a brief absence will quack and bob her head up and down upon her return; the other ducks quack and bob back. A duck and a drake intent on mating will rhythmically bob their heads, sometimes repeating this flirtatious behavior before actually mating. A timid duck may head bob to a dominant duck to indicate her submission, while the dominant duck bobs back in acknowledgment.

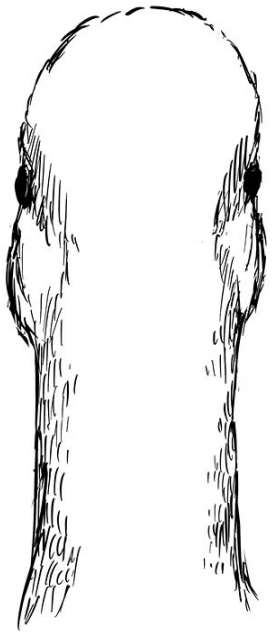
Sideways head bobbing is a sign of annoyance. When a duck is with her chosen drake, and another duck or drake comes along, the first duck will bob sideways, with her head moving downward in the direction of the intruding bird and upward toward her mate. At the same time she will emit a distinctive quack to indicate her displeasure with the intruder. This behavior appears to incite her mate to attack the intruder. A duck may exhibit the same behavior when another duck approaches while she's eating.

Duck Vision

If you look at a duck from the back of its head, you can see its eyes bulging out at the sides. As a result, without moving its head the duck can see horizontally all the way around, and

vertically from above its bill and over the top of its head to more than 180 degrees behind its head.

Ducks thus have the ability to see what's happening along both sides and to the rear without turning their heads. This anatomical feature allows a duck to watch for predators while foraging for food.



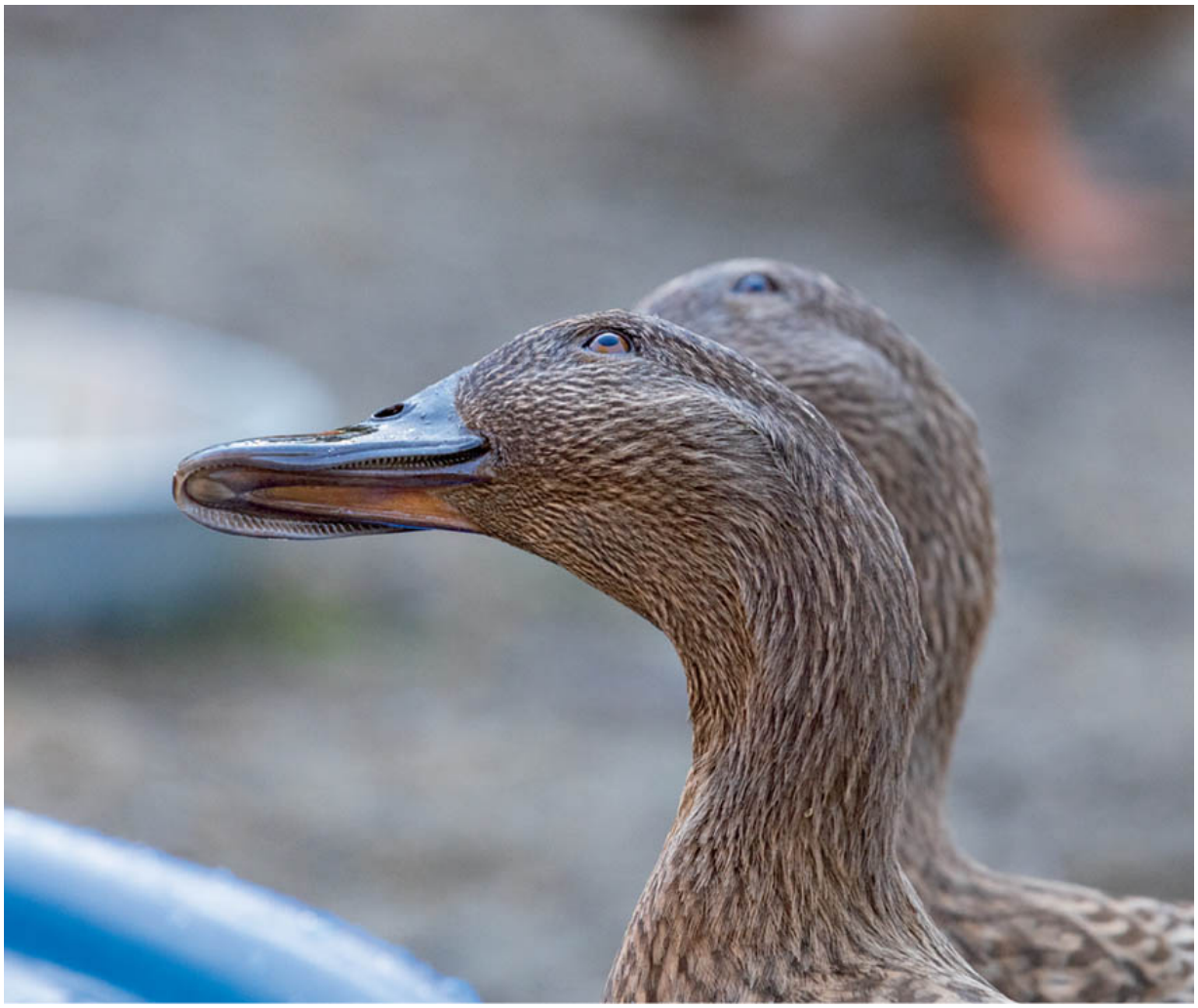
ABOVE: *Seen from behind, a duck's eyes bulge out at the sides, giving the duck a wide field of vision.*

Head Tilting

A duck's eyeballs take up so much space inside the skull that they leave little room for muscles. As a result, the eyes have a limited ability to move within the eye socket. When a duck wants to get a better look at something, instead of moving its

eyes, it moves its entire head. Which way the duck turns its head depends on what it's trying to see.

Like other birds, a duck has a right-eye system, which transmits information to the left side of the brain, and a left-eye system, which transmits information to the right side of the brain. The right-eye system works best for activities requiring recognition, such as identifying things to eat. The left-eye system works best for activities involving depth perception; a duck tilts its head and peers out of its left eye to gauge a potential aerial predator's speed and direction of approach.



ABOVE: *Ducks use their left eyes to check for potential threats from above.*

Single-File Walking

A duck's eyes—positioned on the sides of its head rather than toward the front—can see two different things at the same time. This monocular vision gives ducks a wide panoramic view. The only place where a duck sees the same thing out of both eyes (binocular vision) is in a 5-degree radius directly in

front of its bill. When ducklings trustingly follow their mother, single file, she uses this feature to watch where she's going, while occasionally turning her head from side to side to keep an eye out for predators.

ABOVE: *Walking in a line lets the whole flock keep an eye out for predators.*

As ducks mature, they continue to walk single file, with the ducks following the leader using their wide panoramic monocular vision to watch for predators from both sides and to the rear, and occasionally tilting to look skyward. The appearance of such a parade of ducks presumably causes a predator to be indecisive about which duck to nab, and the resulting hesitation gives the flock time to react to the danger.

One-Eyed Sleep

A duck's right-eye system and left-eye system each have different and complementary capabilities. This dual-eye system gives a duck the ability to sleep with one eye open, resting one side of the brain while the other side remains vigilant. A duck sleeps with its bill resting on its back, nestled into feathers, and often with one eye open to watch for predators.

In a group of sleeping ducks, those at the perimeter of the group open the outward-facing eye to watch for predators, while those that are safely surrounded sleep with both eyes closed. After a time the outer-sleeping watch ducks give their first eye system a rest by turning their bodies in the opposite direction to watch for predators with the other eye.

ABOVE: *Ducks sleep with one eye open for danger.*

DUCK TALE

Duck Smarts

Ducks are smart, but humans are generally considered to be smarter. Sometimes I wonder. One year I asked a friend to care for my ducks, chickens, and cat while I went on vacation. When I got back she told me the cat had developed an enormous appetite and had gone through several big bags of cat kibble in only a few weeks. Weird!

I asked her if the ducks had gotten out and she emphatically said no, she had repeatedly checked the fence and there was no way the ducks could have gotten out of their yard.

Nevertheless, when I examined the chain link fence myself, I found a spot where the soil had been compressed below the bottom of the fence to form a dip. My friend, a seamstress, had already discovered that spot and concealed it with a piece of fabric. That didn't fool the ducks.

Once they knew where to find the low spot and the cat's dish, they happily emptied the bowl as fast as she filled it, then ducked under the fabric curtain

back into their yard. So, I ask you, who was smarter?

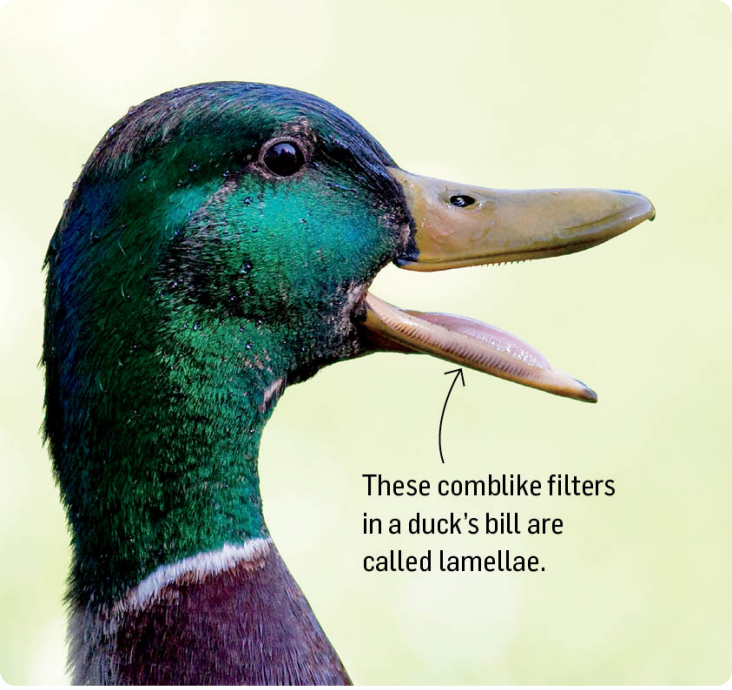
Preening

After a swim or a nap, a duck will rub its bill against the base of its tail, then rub all over its plumage, periodically returning to the tail—an activity known as preening. Above the base of the tail is the duck's uropygial gland, or preen gland, filled with a natural waxy oil that has several functions. By distributing the oil, the duck waterproofs its feathers and maintains their insulating quality.

The odor of a duck's preen oil also conveys a great deal of information to other ducks, including the bird's identity, state of health, and readiness to mate. During preening, the duck combs its feathers with the serrations inside its bill, smoothing the plumage while removing debris and guarding against external parasites. Because ducks bathe and preen so often, they seldom suffer from lice and other body parasites.

Water World

Many of a duck's activities involve water, so it's no wonder that much of a duck's behavior that makes us laugh occurs in and around water.



Mud Mucking

Puddles mean water, and ducks love water. Show a duck a puddle and it'll dig in the muck with its bill, foraging for insects and worms that move toward the soil's surface after a rain. With its wide, flat bill, the duck takes in a mouthful of muddy water, then sorts out what it wants to eat and sieves out the rest through filtering combs lining the sides of the bill. After the ground dries, what was once a puddle is now a bunch of small holes. That's why duck keepers avoid letting their flock into the garden while watering the plants or after a rain.

Blowing Bubbles

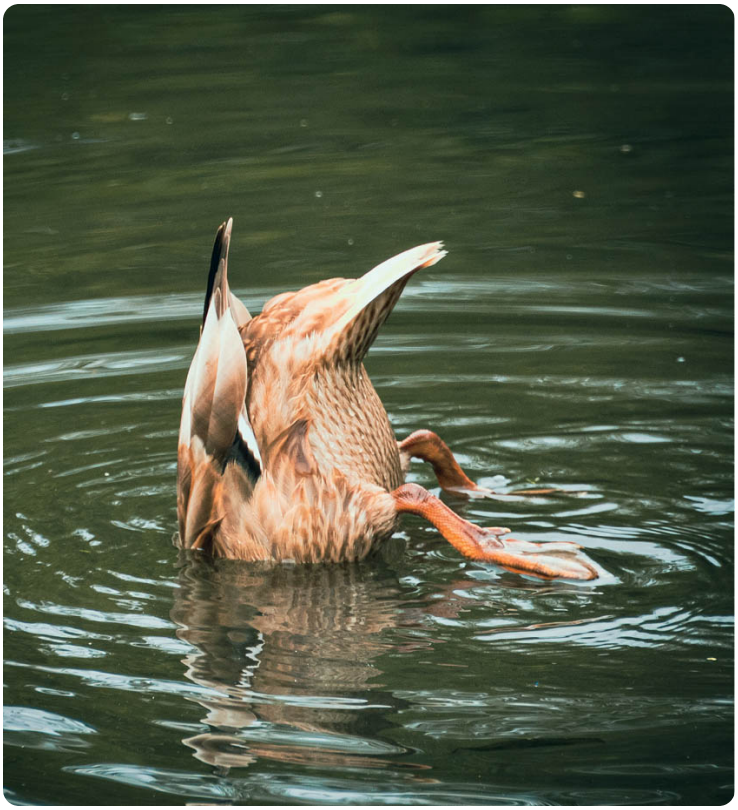
For a duck, one of the most important amenities is access to at least 3 inches of clean water, deep enough to cover its nostrils. Periodically the duck will stick its head underwater and blow out through its nostrils, creating bubbles in the water. While it may look funny to us, what the duck is doing is clearing out feed, mud, sand, grass, feathers, and whatever else might be clogging its nostrils. Essentially the duck is blowing its nose.

ABOVE: *Ducks need to immerse their bills entirely in order to keep their nostrils clear of food particles and other debris.*

Bottoms Up

Mallards and mallard-derived ducks are collectively known as dabbling ducks or dabblers. While remaining on the water's surface, a dabbling duck will stretch its head down as far as it

can reach, with its bottom sticking up in the air and feet paddling. The duck is searching for insects, tadpoles, snails, aquatic plants, and other tasty treats, which it hooks with the bean at the tip of its bill.



ABOVE: *Dabbling ducks search for food by going headfirst into the water and paddling their feet to keep their bottoms in the air.*

A duck can go bottoms-up in a pool that's at least 8 inches deep, although in deeper water it can reach down as far as 20 inches while its bottom remains at the surface.

Deep Diving

Every now and then a swimming duck, or group of ducks, will go into a wild splashing frenzy. If a pond is wide enough and deep enough, suddenly one duck or more will disappear underwater for a few seconds, only to burst back to the surface some distance from where it went under. Although this is a form of play, perfecting this skill comes in handy for hiding from hawks and other aerial predators.

Surface Scooting

A drake often follows his showing-off whistling display (see here) by briefly scooting around with his head and neck flat over the water's surface, as if body surfing. He may also scoot around immediately after mating. A female sometimes scoots along the water's surface to indicate her interest in mating.

Mating in Water

With the exception of Muscovies, most ducks prefer to mate in water, where they are safer from predators during their brief distraction. The buoyancy also makes mating easier on the hens. An amorous drake will come up behind a swimming duck, climb onto her back, and grab the back of her head in his bill. The duck typically gets pushed underwater, which makes it look like the drake is drowning her.

When one drake mates with one duck, drowning is unlikely. But a gang of aggressive drakes intent on mating a single hen

can indeed cause her to drown—reason enough to avoid keeping multiple drakes in a small flock.

Laying Eggs in Water

Ducks often surprise their owners by laying eggs in water. It's most likely to happen when ducks aren't feeling broody and therefore have no reason to seek out a nest to lay in. An egg that's fished out of the water soon after it was laid is perfectly fine to eat. Even if it was submerged in water for a day or two, it may still hatch. To prevent ducks from dropping eggs in the water, keep them confined inside the coop in the morning until after they've finished laying.

3

HOW DO I ACQUIRE DUCKS?

Once you decide what kind of ducks you want, your next step is to decide whether to purchase eggs to hatch, newly hatched ducklings, started birds, or full-grown ducks. Other considerations are what size flock you want and whether you wish to choose the sex of the birds. Then you need to figure out

where to buy them. Depending on your chosen breed, you may find limited sources with limited options.

How Many?

Ducks are social animals that like company. One lonely duck will not be a happy duck, so plan to have at least two. Three is even better—in the event something happens to one, the remaining two will still have each other for company. As a novice duck keeper, you'd be wise to start with no more than six ducks in your flock.

If your goal is to have a laying flock, decide how many eggs you want and size your flock accordingly. Check average egg numbers in the descriptions offered in Chapters 1 and 8. Since ducks don't lay at a steady rate year-round, you may sometimes have more eggs than you can use, and at other times too few. To get you through the slow times, you can stash surplus eggs, properly packed in a carton, in the fridge for as long as four months. The colder the fridge, the better they keep.

If you plan to raise show birds, a mature pair, trio, or pen will give you a nice start. A pair is one drake and one duck. A trio is one drake and two ducks. A pen consists of one drake and three to five ducks. Be prepared to house the drake separately to preserve the appearance of the ducks prior to showtime. You'll find more information on exhibiting ducks in Chapter 12.

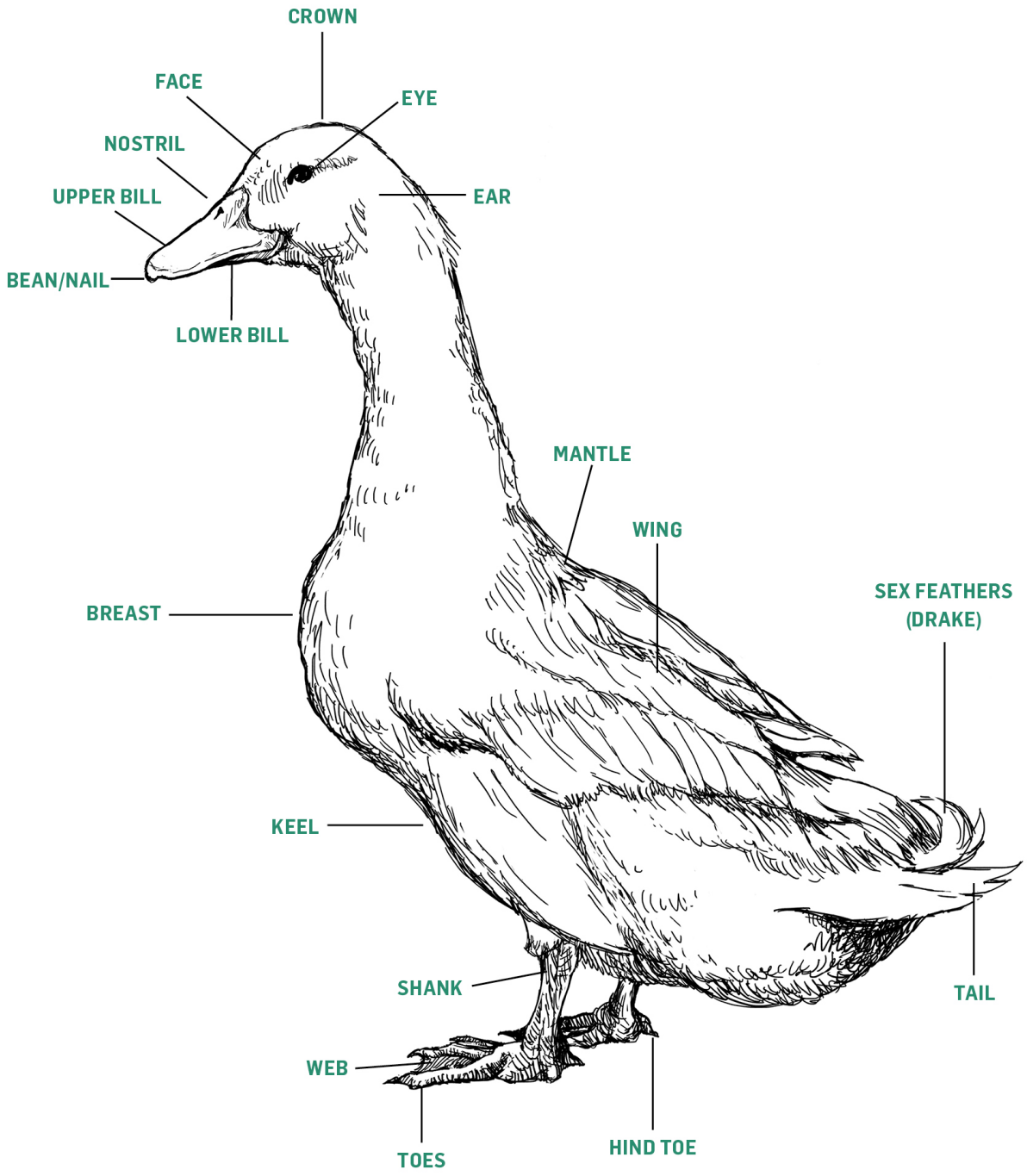
For a novice duck keeper, up to six ducks makes a good starter flock.

What Sex?

Depending on your reasons for keeping ducks, your flock may consist of all females, all males, or some of each. For eggs, you need only females. They will lay regardless of whether a drake is present. In fact, hens may not lay as well in the presence of an aggressively amorous drake.

DUCK ANATOMY

Using proper terms for the different body parts is helpful when you're talking about ducks.



HOW LONG DO DUCKS LIVE?

Few ducks live out their full, natural lives. Many get taken by predators, including pet dogs. Those raised for meat have a short life of as little as 6 weeks. Ducks raised for eggs or as breeders are usually kept for 3 to 5 years, until their productivity and fertility decline. But properly fed and protected from harm, a duck can live for 7 to 10 years, and some have survived as long as 20 years.

On the other hand, having at least one drake in the flock creates a more natural duck society. And if you want to hatch eggs from your ducks, you'll need a male to fertilize the eggs. Chapter 9 offers guidelines for determining the optimum number of ducks per drake, based on breed.

For weed and insect control, the flock could consist of all males. For a strictly meat flock, drakes will grow bigger and faster. And they also generally cost less to purchase.

ABOVE: *With most breeds, it's impossible to tell male and female ducklings apart for the first few weeks.*

If your goal is simply to have a couple of pet ducks, two drakes raised together as ducklings will usually get along well together, at least most of the time. And, compared to the raucous quacking of the females, drakes make hardly any noise at all. Be aware, though, that when you raise drakes from ducklings they may imprint on you as their mother duck, causing them to fight over you during mating season.

Grown ducks easily can be sexed by sight (see Is It a Duck or a Drake?). Ducklings purchased from a hatchery may be sorted by professional sexers and offered as either sexed or unsexed.

Sexed ducklings are separated according to whether they are male or female, so you get exactly as many females or males as you want. Within a given breed, sexed females cost the most, unsexed ducklings next, and sexed males the least. Males have the least value because a flock needs fewer drakes than hens, or none at all if you don't plan to hatch the eggs.

Unsexed ducklings—also called hatched or straight run—are mixed in gender exactly as they hatch, or approximately 50 percent males and 50 percent females, at least in theory. Sometimes the mix comes out more like 60/40 or even 75/25. Depending on a roll of the dice, the majority may be males or females. If your plan is to have a dual-purpose egg-and-meat flock, you might start out with a batch of straight-run ducklings and raise the surplus drakes for meat for the freezer.

CHECK LOCAL REGULATIONS

Before bringing home your first ducks, check your local zoning laws and other ordinances. Regulations may limit or prohibit duck-keeping activities in your area and may pertain to birds bought, sold, traded, shown, shipped, bred, hatched, or butchered.

Two common regulations restrict how many birds you may keep and how far they must be from your property line. Obtain information from your town or county zoning board or Extension agent and from your state poultry specialist or veterinarian.

Even if specific laws don't pertain, consider the possibility that grumpy neighbors may file a nuisance suit if your ducks quack too loud or get loose and swim in their pool or trample their flowerbed. If that seems likely, you'll fare better by selecting a breed that tends to be less noisy than others and less apt to fly.

How to Build the Flock

You might start your flock with ducklings, started ducks, or mature ducks. Or you might acquire eggs for hatching, appropriately enough called hatching eggs. Each option has advantages and disadvantages.

ABOVE: *A brood of ducklings must be kept warm and dry until their adult feathers grow in.*

Raising Ducklings

Ducklings are available from more sources than hatching eggs or older ducks. They are a surer bet than hatching eggs and are usually cheaper than started or mature birds. If you want your ducks to be pets, ducklings will bond with you more easily than started or mature birds. Baby birds shipped any distance travel much better than eggs and are less likely than older birds to come with health issues.

If your flock is primarily for eggs, starting with ducklings means you'll have to wait several months before the eggs start

coming. On the other hand, if your flock is primarily for meat, you'll have better control over what the ducks eat and when they are ready for harvest.

If you want your birds to compete in shows, the downside to starting with ducklings is you won't know if you have a potential winner or quality breeder until they mature. And regardless of your purpose, ducklings—especially bantam ducklings—require more care at the outset than started or mature birds (see Chapter 6 for brooding techniques).

DUCK TALE

From a Backyard Duck to the National Zoo

You never know where an interest in ducks might take you. As a kid, my friend Gene Morton was obsessed with ducks. As a teenager, he raised a newly hatched Mallard he named Dippy, after her habit of tipping her bottom up while feeding in water.

“I used to carry Dippy to the end of my suburban street and let her fly home,” Gene relates. “She would careen down the road and circle into our backyard, where she landed in a small concrete pool. One time she missed our street and went down the adjacent road, landing in the snow where our yard should have been. Confused, she took off again, and disappeared for 3 weeks. Someone found her about 12 miles away, walking across a high-level bridge into the city. She was taken to an animal shelter, where she gained attention in the newspaper.”

That news story led to a TV appearance for Gene and Dippy. Gene eventually went on to earn a degree in ornithology. He then became Curator of Birds at

the Smithsonian National Zoo, all thanks to his early passion for ducks.

Started Ducks

Started ducks—past the brooding stage but not yet fully mature—make a good option if you don't want to deal with the mess of brooding babies. For a laying flock, started females have two advantages: You won't spend much time feeding unproductive birds, since they'll soon begin laying, and because the birds haven't started laying yet, you'll have them for the longest possible productive life compared to full-grown hens.

Started birds are also a good option if you plan to show. They're less expensive than proven show birds, but also less likely to have serious faults than ducklings, since show breeders typically cull young birds with serious faults. Just take care you don't acquire the culls.

ABOVE: *Started ducks are a good choice if you aren't interested in brooding babies.*

Mature Ducks

Full-grown ducks are usually the most expensive, although if you're not fussy about breed or age, you may find someone giving them away for free. Mature ducks offer the fewest surprises, since you see exactly what you're getting.

A potential issue with acquiring grown ducks is that they are less likely to be as friendly as ducks you raise yourself from a young age. So if your goal is to have ducks for companionship, you likely will be happier with ducklings or started ducks.

ABOVE: *Purchasing adult ducks is more expensive but you have more knowledge about what you're buying.*

Another issue regarding acquiring mature ducks is excessive age, which can be a serious problem if you're buying mature birds for laying or breeding. Ducks are at their prime age for breeding between the ages of 1 and 3 years. However, they typically continue laying pretty well to age 5, and sometimes beyond.

Indications that a bird is still young are a pliable upper bill, a flexible breastbone, and a flexible windpipe. Another sign is blunt tail feathers, where the once-attached down has broken off. After a bird molts into adult plumage, it acquires the rounded tail feathers of an adult, and once it reaches full maturity, you'll have a hard time determining its age and will have to take the seller's word.

Before bringing any birds home, check them for signs of good health: alertness, clear eyes, a proper amount of plumpness, and normal activity levels. Look out for anatomical problems, such as crooked backs or breastbones.

IS IT A DUCK OR A DRAKE?

To minimize aggression among males and excessive breeding of females, make sure you have an appropriate proportion of males to females. In a normal situation you would want no more than one drake for up to six ducks. Being able to distinguish the males from the females is therefore essential.

With most breeds and varieties, males and females are difficult to tell apart by appearance alone until they are several weeks old. The only way to determine the gender of most newly hatched ducklings is by vent sexing. Also called cloacal sexing, this method determines a hatchling's gender by examining minor differences in the tiny cloaca just inside the vent. Accuracy requires a great deal of training, skill, and keen observation. To avoid causing injury, this skill is best learned firsthand from an experienced person.

One exception is the sex-link hybrid layer known as the Golden 300 or Gold Star, which is bred to be sexed with 100 percent accuracy by feather color—male ducklings are black, females are brown. Since they are crossbred,

the same color pattern doesn't hold true for the second generation.

Another exception is the Welsh Harlequin, which is autosexing, meaning the breed exhibits a characteristic difference between the two sexes that is passed down from generation to generation. In this case, that characteristic is bill color. For the first few days after hatch, nearly all the males have darker bills, while females usually have a lighter bill with a dark spot at the end.

As with other nonwhite mallard-derived breeds, hens generally develop darker bills as they grow. Mature Mallard hens and other ducks of similarly colored plumage have brown and orange bills compared to the drake's greenish bill. As the ducks feather out, the head and back feathers of nonwhite Mallard hens are not as dark as those of the drakes.

Looking at Feathers

The males of some color breeds develop a different color pattern from the females. However, following the eclipse molt, which takes place after the breeding season, males of some breeds temporarily look more like females.

Speed of feathering offers another clue. Female ducklings tend to sprout feathers more quickly than males, and wing feathers are the first to appear.

Eventually all males, except Muscovies, develop curly sex feathers at the top of their tails. These feathers disappear after the eclipse molt and reappear after the nuptial molt, which occurs prior to the start of the next breeding season. (See more about molting).

Instead of being sexed by tail feathers, Muscovies may be sexed by the red caruncles on their faces. The male's caruncles develop at about 16 weeks of age. The female's less massive caruncles develop at about 20 weeks.

Size and Voice

In ducks of the same age and breed, the males are generally larger and heavier than the females and have thicker, more wide-set legs and larger feet. This difference is especially pronounced in Muscovies; the drakes mature to about twice the size of the hens.

Among most breeds, the male speaks in a barely audible, hoarse whisper, while the female has a loud quack. Muscovy females can quack, but they usually do so only when startled or frightened. Otherwise they make a pleasant musical sound, while Muscovy males huff and hiss.

ABOVE: *All male ducks, except Muscovies, grow curly tail feathers when they reach sexual maturity.*

Hatching Eggs

Hatching eggs are fertilized eggs that should hatch if properly incubated for 28 days (35 days for Muscovies). However, you'd be hard pressed to find hatching eggs that come with any kind of guarantee. Too many things can happen between the time the eggs are laid and the time they are supposed to hatch.

Another issue with hatching your own eggs is that you'll invariably end up with extra drakes to deal with. When you start with live birds, you can choose their sex.

If you do opt for hatching eggs, and you happen to have a setting chicken, you might put them under her. Otherwise you'll need an incubator. Hatching techniques are described in Chapter 9.

Sources for Buying Ducks

The best place to buy ducks depends on what breed you want. The biggest duck farm in the United States is Metzer Farms, but even they don't carry all the breeds. Some poultry hatcheries that offer ducklings or hatching eggs get theirs from Metzer; others have their own breeding flocks, and some tend to specialize in one or a few breeds.

The Sand Hill Preservation Center offers a large number of breeds in limited quantities. The Livestock Conservancy maintains a list of breeders who keep heritage ducks.

County and state fair poultry shows can be good places to meet duck owners, who love to talk about their favorite breeds. Even if you don't see the type of duck you want at the fair, some of the exhibitors may know others who raise that breed.

Some hatcheries offer several duck breeds. Others specialize.

Although ducks in general are hardy and disease free, you can be sure you're getting healthy birds by purchasing from a flock enrolled in the National Poultry Improvement Plan (NPIP), which certifies breeding flocks to be free of the most serious diseases. Because a lot of breeders don't want to get involved with government bureaucracy, you may not always be able to find an NPIP member who has the kind of birds you want, but lack of membership doesn't necessarily mean a breeder's ducks are unhealthy.

Farm stores sometimes sell ducklings during spring. Most of them get theirs from an NPIP-certified hatchery. Although

they rarely offer much choice in breeds, the store manager may be willing to order your chosen breed along with their regular spring hatchery order. Check at the beginning of the year when orders are typically being placed.

MAIL-ORDER EGGS OR DUCKLINGS?

Ducklings shipped by mail straight out of the incubator can survive a two- or three-day trip without food and water because they're still absorbing the yolk reserves that sustained them during the hatch. Still, ordering ducklings or hatching eggs through the mail is not without risks.

For starters, you need to find a reliable source. If you purchase from someone you don't know or who is not known to the greater poultry community, you can't be sure what you're getting. The breeder flock may be unhealthy or of poor quality. Hatching eggs may have been stored improperly, stored for too long, or packed insufficiently to protect them on their journey through the postal system. The eggs may not even be fertile.

Once you have identified a reputable seller, check to see how close they are to you. The less time eggs or ducklings spend in transit, the better chance they have of arriving safely. So look for a seller as close to you as possible. You might get lucky and find someone near enough for you to pick up the eggs or ducklings in person. Not only will that

reduce travel time, but also you will avoid the sometimes exorbitant cost of having them shipped.

Other issues your eggs or ducklings will have avoided include:

- Being subjected to summer heat or winter freezing
- Being transported in a plane's nonpressurized hold
- Remaining in transit for too long
- Rough handling, including bouncing around in a mail carrier's delivery vehicle

When you order hatching eggs or ducklings by mail, ask the shipper to put your phone number on the outside of the box (hatcheries do this routinely). Let your carrier know ahead of time when they are coming and ask to be notified when the eggs or ducklings arrive at the local post office. Then you can pick them up and get them home more quickly than if they were to be delivered by the carrier.

ABOVE: *Ordering ducklings allows you to choose several different breeds. Many hatcheries include cups of gel in the shipping box to provide hydration and nutrients during transport, which helps reduce shipping stress.*

4

WHAT DO DUCKS EAT?

The nutritional needs of waterfowl vary with breed, age, and level of production. Growing ducks have different needs from mature ducks. Meat ducks have different needs from layers and pet ducks. However, once you understand the principles, you'll readily know what to feed your ducks, and when.

Commercial Feeds

Some feed stores offer commercially prepared rations that are blended to meet the requirements of ducks. Many do not, leaving you to make do with what you can get. In general, you'll have these basic choices.

Starter ration with 21 to 22 percent protein will get ducklings off to a healthy start. If your local feed source doesn't offer either duck starter or a high-protein chick starter, the next best options are turkey starter or game bird starter. Both have slightly more protein than ducklings need, making them more expensive. But it's only for the first three to five weeks, and the extra protein won't harm them. When feeding a starter that wasn't formulated for ducklings, you'll need to add a niacin supplement, as described here.

Grower ration, sometimes called developer ration, has a protein level of 17 to 19 percent and is designed to promote balanced growth in ducklings upwards of 3 to 5 weeks of age. It may also be used for mature ducks during seasons when they aren't breeding or laying.

Breeder-layer ration has a protein level of 16 to 20 percent and includes vitamins and minerals that layers and breeders need to be productive while remaining fit. Transition ducks from grower to breeder-layer ration two or three weeks before they are expected to begin laying, or at about 24 to 26 weeks of age.

Mixed grains, sometimes called scratch grain or chicken scratch, usually consist of a mixture such as corn, milo, oats, and cracked wheat. Mixed grains should never be fed as the sole ration but may be fed in moderation to free-range ducks to keep them tame. As a supplemental ration, fed at the rate of no more than 25 percent of the total ration, grain will provide an energy source for warmth during cold weather. Whole grains are more nutritious than cracked grains, won't spoil as quickly, and, if dropped, will sprout and eventually be eaten—or may be deliberately sprouted to give your ducks a treat. Or you might scatter whole grains in the ducks' water pan, letting them have fun dunking for the goodies.

TRANSITIONING RATIONS

Whenever you switch from one type of ration to another, avoid nutritional upsets by making the change gradually. Mix increasingly greater quantities of the new ration into the previous ration until the transition is complete.

Feed Forms

Commercially prepared feeds come in three forms: mash, pellets, and crumbles.

Mash consists of ingredients that have been combined and ground up. This form results in the greatest amount of wasted feed. Wastage may be reduced by moistening the mash. But moist mash can spoil, so mix only as much as your ducks will eat before the next feeding, and thoroughly clean out the trough between feedings.

Pellets consist of mash that has been compressed and broken into small tube-shaped pieces, which are easy for mature ducks to eat. They result in the least amount of wasted feed, and wasted feed equals wasted money. Ducklings cannot eat the same large pellets that a grown duck can eat. If you can't find starter in small pellets, about ⅛ inch in diameter, use crumbles for ducklings.

Crumbles are pellets that have been crushed. They are typically fed to young ducks that aren't big enough to handle the larger pellets, although crumbles result in more wasted feed than pellets.

ABOVE: *Mash*

ABOVE: *Pellets*

ABOVE: *Crumbles*

Grit

When a duck swallows food, the food gets stored in its crop. From there, it trickles into a tough organ called the gizzard. In the gizzard, the food particles rub against grit—in the form of pebbles and sand the duck has eaten—and are ground up, allowing them to be digested. Eventually the grit gets ground up, too, so it must be continually renewed.

Ducks that forage pick up natural grit in the course of their daily activities. To make sure they get enough for proper digestion, provide a source of insoluble grit that they can always access. Farm stores sell insoluble granite grit in two sizes. Use chick grit for ducklings and hen-size grit for birds 6 weeks and older.

Ducks that eat solely a commercial ration don't need supplemental grit. Their saliva is sufficient to soften the ration for digestion. Ducks fed scratch grains, on the other hand, do need access to grit.

SPROUTING TREATS

When forage is sparse, ducks enjoy sprouts. Use only seeds that are free of harmful chemicals. Easy sprouters include:

- Adzuki beans
- Millet (unhulled)

- Sunflower seeds (black oil or gray striped)
- Mung beans
- Wheat (hard winter)

Duck Feeders

Few companies make feeders specifically for ducks. Ducklings in a brooder can use basically the same types of feeders designed for baby chickens. When shopping for a feeder for mature ducks, look for these features.

- **Accessible**—ducks can't get their bills into some feeders designed for chickens.
- **Easy to clean**—you'll need to clean it often.
- **Has a lid**—to keep out wild birds.

- **Rodent resistant**—the feeder should be difficult or impossible for rodents to access.
- **Clog free**—doesn't have a chute that can clog when feed gets damp.
- **Stable**—if a duck bumps into the feeder or stands on the rim, the feeder shouldn't flip over.
- **Weatherproof**—to protect feed from getting wet in the rain.

Many duck keepers don't feed their ducks inside the coop. The reason is that in order to swallow, ducks need to drink. If feed is inside the coop, water must also be inside the coop. And that means the coop bedding will soon be a soggy mess. So if you find a feeder you like but it isn't promoted as being weatherproof, you'll need to put it under a roof or overhang to keep out rain.

One commercially available option that fits nearly all criteria is the RentACoop chicken feeder, which comes in either galvanized metal or plastic. Another good option is the Royal Rooster PVC duck feeder.

When shopping for a feeder, look through the product reviews for discussions on the feeder's suitability for ducks. If you use the same feeder for both ducks and chickens, get a style the ducks can use easily; the chickens won't have a problem.

Inexpensive duck feeder options include a large pet food bowl or a rubber livestock feed pan with tapered sides. Lots of DIY duck feeder projects are discussed online. Some of them are more sensible than others, so keep the above criteria in

mind when selecting one. A good way to determine suitability for ducks is to compare the features of your preferred DIY project with the best-rated commercially available feeders.

As they eat, ducks travel back and forth from the feeder to the drinker, getting water in their feed and feed in their water. To keep both feed and water clean, space feeders and waterers 6 to 8 feet apart for mature birds. For ducklings, place feeders and waterers on opposite sides of the brooder.

Fill a feeder with only as much as your ducks will consume in one day. Clean out any leftover feed at the next filling. If the feed gets wet, clean the feeder within a few hours. Freshly dampened feed will not hurt ducks. Damp feed left standing for more than a few hours, especially in warm weather, can become moldy and toxic.

ABOVE: *A large pet food bowl can serve as a feeder if the food is kept dry and the bowl is cleaned frequently.*

How Much Do Ducks Eat?

The easiest way to feed ducks is to provide rations free choice, meaning the ducks have access to feed all day long. Ducklings fed starter or grower ration should definitely be fed free choice. (See Chapter 6 for more about feeding ducklings.)

Ducks eat less when they have access to high-quality forage. If you have older ducks that spend most of their time on good forage, they don't need more commercial ration than they can eat within 15 minutes twice a day, morning and evening. Supplementing the ducks' forage diet with grain or

commercially formulated ration will help them through the winter months, as well as giving their fertility a boost during breeding season.

Average* Pounds of Feed per Duck per Week	
BREED	**POUNDS OF FEED**
Muscovy	3 1/2
Pekin	3
Runner	2
Other large breeds	2 1/2
Mallard	1 1/4
Other bantam breeds	3/4

*Actual amounts vary with such factors as age, size, degree of activity, availability of forage, and ambient temperature (ducks eat more in cold weather and less in hot weather).

DUCK TALE

Rodent Control

My first pair of Muscovies were Missy and Hissy. Missy was a lot friendlier than Hissy, especially after the day I unearthed a rodent nest. I'd been digging in the ground near the coop, likely to learn why a small hole had appeared there. Missy was watching nearby. When my digging revealed a nest of baby gophers, Missy swiftly moved in and gobbled them up. Ever after, whenever Missy saw me with shovel in hand, she followed me around wagging her tail.

Forage for Ducks

Given sufficient space with succulent vegetation, mallard-derived breeds can satisfy 90 percent of their nutritional needs by eating vegetable matter. A grassy pasture, especially one that includes alfalfa or clover, offers ideal forage. So does a lawn that is not maintained with toxic chemicals.

In the garden, ducks will scarf down weed seeds and emerging weeds. But keep them away from tender greens and ripening strawberries. Also keep them out of the garden while you're watering, and during or right after a rain, since the ducks will turn the smallest puddles into muddy holes. In general, one pair of mature ducks per 500 square feet of garden space will do more good than harm.

An alternative is to plant extra leafy greens, such as kale, cabbage, and lettuce, to feed your ducks. A common practice is to sprinkle chopped greens on the surface of the ducks' water pan. They will scoop up the leaves, just as they would if they lived in the wild.

The remaining 10 percent of a duck's diet comes from animal matter. They enjoy eating tadpoles, mosquitoes and mosquito larvae, snails, and slugs, as well as Japanese beetles, flies, sowbugs, and other insects.

A Muscovy's diet leans more toward meat. Muscovies have an enormous appetite for insects, slugs, snails, and baby rodents. But note that, with their massive bodies and large flat feet, they can be destructive in the garden.

ABOVE: *A pesticide-free lawn can provide plenty of forage for a small flock of ducks.*

Leftover fresh fruits and vegetables are welcome additions to any duck's diet. Make sure the produce isn't spoiled or moldy, and chop everything into bite-size pieces. Avoid feeding raw potato peels, which ducks can't readily digest.

Providing Drinking Water

For their size, ducks drink relatively large amounts of water. Each mature duck can go through as much as half a gallon of water a day; less for bantams, more for the largest breeds. Unless your duck yard is blessed with a free-flowing source of

potable water, you'll need to provide a constant supply of clean drinking water.

Where temperatures dip below freezing, furnishing unfrozen drinking water can be a challenge. Even when the water doesn't freeze in winter, your ducks will appreciate twice-a-day drinker refills with warm water. In hot weather, when ducks drink more, you'll need to either provide extra drinkers or frequently refill the existing ones with cool water.

Ducks like to bill out their drinking water, causing muddy puddles to form beneath and around the drinker. Preventing this mess is the biggest challenge faced by the newbie duck keeper, or any duck owner for that matter. The area around the waterer must be able to drain quickly. Placing the waterer on a platform of wooden slats or hardware cloth set on a deep bed of gravel will help improve drainage. Of course, a tremendous help is a drinker that doesn't leak to start with.

Installing the drinker outside the coop will keep the indoor bedding dry and clean. Ducks past the brooding stage will do just fine overnight without water, provided they have an opportunity to tank up before going indoors at night. No water in the coop also means no feed since a duck could choke without water to wash it down.

ABOVE: *A container such as this will need to be emptied, cleaned, and refilled frequently.*

However, when nighttime temperatures are above 80°F (27°C), you may need to put up with the mess of keeping water inside the coop to help your ducks stay hydrated. An alternative is to construct a porch at the doorway, enclosed with hardware cloth, so the ducks can waddle outside for a drink without fear of being snatched by a night-prowling predator.

Waterers

The two most important features of a proper duck waterer are that it can be easily cleaned and that it allows ducks to dip in their entire heads. A duck keeps its bill free of caked mud and feed by sticking its head in water and squirting water through

its nostrils. For a duck to be able to clean its face, the drinking water basin should be at least 1½ inches wide and 3 inches deep. For you to remove the accumulation of sediment from all that face washing, the basin must be easy to clean.

Waterers designed with ducks in mind include Royal Rooster's nipple cup, RentACoop's cup waterer, and Premier 1's automatic poultry drinker. For a climate that freezes in winter, K&H's duck waterer has an optional built-in heater.

As with duck feeders, the internet offers lots of ideas for DIY duck waterers. Keeping the above criteria in mind and comparing DIY projects to commercially available options will help you construct a waterer that's truly suitable for ducks.

ABOVE: *This type of waterer is easy to clean, but you must also provide a deeper container for face washing.*

STICKY EYES

Ducks can get sticky eyes, which may be caused by an infection or a dietary deficiency. But most often sticky eyes are the result of having insufficiently deep water for the duck to rinse its face up to its eyes. Sticky discharge from the eyes gradually mats the feathers around the eyes. If the situation is not corrected, the poor duck's eyelids may eventually stick shut.

The simple solution is to provide water deep enough for face washing. Where a pool or pond is not available and the drinker is too shallow, ducks should have access to a large bowl of clean water for face bathing. In warm weather, the bowl should be placed in a shady area. The bowl should be cleaned and refilled daily, using warm (not hot) water during cold weather. Some duck keepers sprinkle a little scratch grain or whole wheat into the bowl. When a duck dunks for the wheat, it also bathes its eyes.

5

WHAT FACILITIES DO DUCKS NEED?

Ducks do not require elaborate housing, but they do need protection from the elements and from predators. Confining them indoors at night will protect them from predators, as will a fenced yard. A fence will also prevent the ducks from

wandering away or congregating in your doorway and leaving their slippery calling cards.

Although ducks must have a consistent source of water, having a pond is not critical to keeping a few ducks. (See Do Ducks Need a Pond?.)

Providing a Coop

Do ducks really need a coop? In some situations, they may not. My first ducks lived in a fenced orchard with a large pond and no coop. They had plenty of room to roam and could rest in shade under the apple trees. The climate there was warm, and we rarely saw freezing temperatures.

After I moved to an area that has cold winter days, my ducks still preferred to be outdoors. A layer of down on their skin and a layer of fat under the skin keep them warm in winter. All they need to remain comfortable is shelter from wind and a pile of thick bedding (think straw) to rest on when it snows.

Even though ducks don't care to be indoors, we now confine ours to a coop overnight to protect them from owls, foxes, and other nighttime marauders. A coop also gives them a place to seek refuge from icy wind, scorching sun, and pelting hail or chilling rain. A south-facing coop provides winter warmth from the sun, with north and west walls offering protection from prevailing winds.

An enclosed shelter and well-fenced yard will keep ducks safe from predators.

Size and Access

A reasonably sized coop provides 3 to 4 square feet per duck for a light weight breed, or 5 to 6 square feet for a heavy breed. The coop height should be determined by what's needed for ease of cleaning. A low coop that's long and narrow, with wide access doors on the long side, allows soiled bedding to be scraped out and replaced. On the other hand, a coop with a blockier shape is easier to clean if it's tall enough that you can stand upright in it for cleaning.

Provided the coop offers enough access for you to periodically clean out the bedding, it needn't be much taller than the ducks themselves. A height of at least 3 feet is adequate for breeds other than Muscovy. For non-Muscovy breeds, a coop needn't have enough height to accommodate a perch, since most ducks sleep on the floor.

Muscovies, on the other hand, roost like chickens. Unless you provide perches inside the coop, they will be less inclined to go inside for the night but instead may seek out a tree, a fence top, or the roof of a building to spend the night. In the coop, their perches should be as high as you can reasonably make them, but at least 24 inches below the ceiling. To accommodate their heavy weight and large feet, use 2×4s with the wide side facing up.

The pophole (duck-size doorway) should be at least 20 inches wide and at floor level. If you are repurposing a chicken

coop with an elevated doorway accessed by a ramp, make the ramp longer. To accommodate ducks, the ramp needs to be much less steep than for chickens.

ABOVE: *A repurposed chicken coop works fine for ducks provided the access ramp is long enough to accommodate them.*

Ventilation and Lighting

The coop needs good ventilation without being drafty. Screened vents near the roof will provide ventilation, as well as helping reduce humidity inside the coop. Windows screened with hardware cloth also allow for air circulation, provided they are arranged to avoid a chilling cross draft.

Rather than sleeping through the night, ducks take catnaps, much as they do throughout the day. Because they tend to be restless when cooped up, consider attaching a small but secure sleeping porch to the coop so they can move outside under the stars if they so wish.

Lights shining through their window—such as from the moon, passing cars, or someone's backdoor light—can create scary shadows, causing ducks to quack during the night and maybe even stampede and trample one another. Avoid that issue either by facing windows away from potential outside lights or by installing low-watt lights in the coop ceiling. A person knowledgeable about electrical matters can advise you on how to safely include lights in the coop.

Feeders, Bedding, and Nests

For any breed, a duck coop doesn't need space for feeders and drinkers. Furnishing water in the coop overnight will only result in a soggy, smelly mess. And since ducks can't eat without drinking, feed should also not be provided. Your ducks will do just fine overnight without feed or water. Placing a feeder and drinker in the yard near the coop will let them chow down first thing in the morning.

A simple coop floor is packed dirt. Where digging predators present a problem, line the floor with hardware cloth securely fastened to the coop bottom all around. Bedding of sand, wood shavings, or straw on the coop floor will control droppings and simplify cleanout. Fresh bedding also keeps eggs that are laid on the floor clean.

Mallard-derived breeds will lay eggs in floor-level nest boxes if you provide them, which also helps keep the eggs clean. Muscovies prefer nests that are elevated 2 to 3 feet off the ground. Exterior nest boxes are convenient, with duck access from inside the coop and people access outside for egg collecting. (Chapter 8 covers nests in more detail.)

BEDTIME

Because ducks aren't keen on being indoors, you'll have to train them to go in at night. Ducks are relatively easy to herd, especially if the coop is located in a fenced corner. Otherwise, instead of being funneled through the doorway, they may lead you on a merry chase around the coop. Once they get the idea they're supposed to go inside before dark, they'll eventually learn to go in on their own. You'll still need to close the door for the night, unless you install an automatic pophole door and calibrate it to close when you know the ducks have gone in for the night.

A Fenced Yard

The ideal duck yard has a slight slope and sandy soil for good drainage. The less ideal the area, the more space you should provide per bird. The yard should have both sunny and shady

areas, giving the ducks options for where to rest. It should include a windbreak, which might consist of a dense hedge, the side of the coop or another building, or a portion of solid fence.

Fencing around the yard is indispensable for keeping waterfowl safe from predators and preventing them from roaming too far. Since ducks are more adept at finding ways to get out than at finding ways to get back in, the fence must be sound and well maintained.

A 3- or 4-foot fence will confine nonflying breeds. A 5- to 6-foot fence is more appropriate for Muscovies. Mallards, on the other hand, would need an entirely covered yard to prevent flying. (An alternative is to clip their wings, as described in Chapter 7.)

Small-mesh field fence provides good protection for ducks. Depending on who's selling it, field fence is also known as yard fencing, small stock fencing, lawn and garden fencing, goat and sheep fencing, kennel fencing, or poultry fencing. The typical mesh size for a duck yard is either 2 inches square or 2 inches wide by 4 inches high.

If you plan to let your ducks nest in the yard, the fence will need additional security to keep the ducklings from wandering off. Attach a 12-inch-wide strip of tight-mesh wire (such as hardware cloth or aviary netting) all around the bottom of the fenceline.

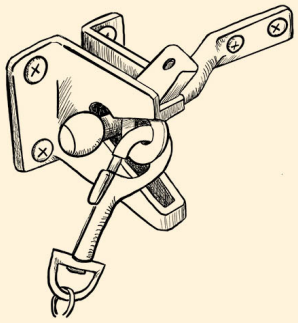
ABOVE: *Although more expensive than field fencing, chain link provides a secure option for foraging ducks.*

Stretch the field fence tight on the outsides of posts spaced 8 feet apart. For additional security from four-legged predators, run an electrified wire no more than 2 inches above the fence top. Any predator that attempts to climb over the field fence will get a shock when it reaches for the electric wire, causing it to drop off the fence. Before installing electrified fence wire, check local regulations to make sure it's legal in your area.

The yard should provide a minimum of 15 square feet per duck. The larger the area, the cleaner your ducks will remain. An area that's too small for its population soon becomes muddy, mucky, smelly, and fly-ridden. The more area available for grass to grow, the better the chance the grass will survive against flat-footed waddling and the more widely duck droppings will be distributed, letting them dissipate naturally instead of building up to create a problem.

DOUBLE-ACTION LATCHES

To foil raccoons and other dexterous predators, secure all doors and gates with latches that require two different motions, such as both lifting and pulling. For further security, lock each latch with a snap hook. If you fasten the snap hook to a short length of chain, with the other end attached to the door or gate, you'll be less likely to lose the hook by dropping it or by tucking it in your pocket and forgetting to clip it back on the latch.



Protection from Predators

Ducks, and duck eggs, are delicious. Just ask any fox, weasel, raccoon, or skunk. Dogs chase and kill ducks for sport, and cats love to stalk downy ducklings. A sturdy fence goes a long way

toward keeping out most predators. Burying the bottom of the fence 4 inches belowground in most cases will keep predators from digging under.

In a remote area where a predator might dig for hours undisturbed, an easier method than putting the fence deeper into the ground is to install an apron fence for extra protection around the bottom of the fence.

Look Out Overhead

Keeping out flying predators is much more difficult, unless your yard is small enough to entirely cover over with netting. A less expensive alternative, but one that may not be visually acceptable to nearby neighbors, is to crisscross the yard with single strands of wire placed high enough for you to walk under. From these wires, hang strips of survey tape, old sheets, obsolete CDs or DVDs, or anything that will flutter in a breeze and thereby discourage flying predators from landing.

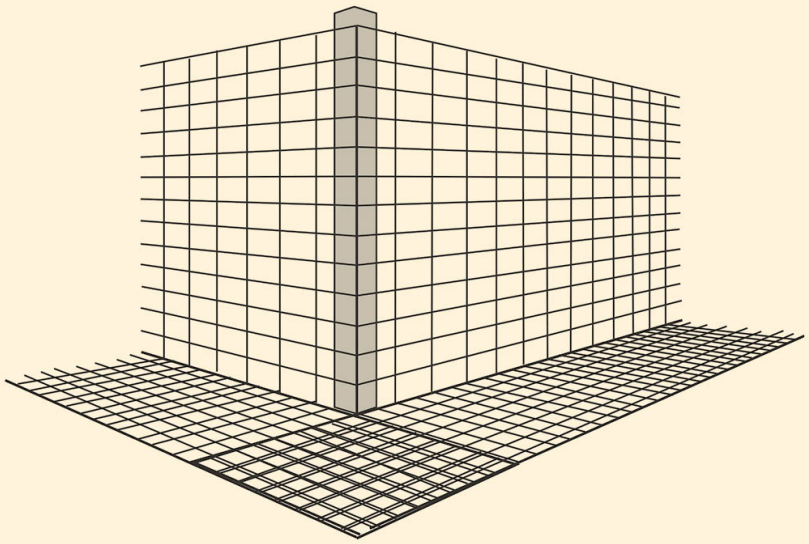
Aerial predation may be further minimized by providing a roofed shelter for the ducks to hide under. Even so, without a completely covered yard, crows and blue jays may occasionally find their way in to peck holes in your eggs, and owls or hawks may swoop down and make off with hatchlings.

INSTALLING AN APRON FENCE

Also known as a skirt fence, beagle net, or L footer, an apron fence consists of a wire mesh barrier at least 12

inches wide, securely attached at a right angle all along the outside bottom of the fence. Diggers normally start at the base of a fence and don't think to back off a foot before starting to dig, so they have trouble getting through or underneath the apron. Woven or welded wire with mesh openings of 2 to 3 inches will keep out most diggers except rodents and weasels, for which you will need openings of 1 inch or less (think hardware cloth). Since even galvanized wire begins to rust almost immediately upon contact with moist soil, the apron should be given a good rust-resistant coating.

Cut and lift a 12-inch-wide strip of sod along the outside of the fenceline. Securely clip or lash the apron to the bottom of the fence, extending out horizontally along the ground away from the yard. Replace the sod on top and grass roots will anchor the mesh to create a barrier that discourages digging.



Do Ducks Need a Pond?

Ducks don’t absolutely need a pond, as long as they have a deep enough source of water in which to wash their faces several times a day. But they do love a pool or pond to dabble in, and watching them splash around increases the fun of having ducks. Plus, bathing helps them clean and condition their feathers. In hot weather having at least enough cool water—a temperature of 50 to 70°F (10 to 21°C) is ideal—to wade in helps them stay comfortable. And, because ducks prefer to mate in water, having a pond improves egg fertility, especially for the deep-breasted breeds. Of all the duck breeds, only Muscovies don’t mind if they have no pond.

You don't need a lot of yard space to build a duck pond, and it's not at all difficult. My first ducks came with a house we moved to that had a small earthen pond in the yard. The ducks enjoyed digging into the built-up sides of the pond, which therefore required constant repair to control erosion. Our simple solution was to line the inside of the pond with concrete and place large rocks around the outside edge to make it look natural while discouraging digging. A drain embedded in the concrete at the bottom of the pond allowed for periodic cleaning. That pond was easy to maintain, the ducks loved it, and we loved watching them have a good time in it.

Depending on the size of the yard, the duck pond may be inside or outside the duck yard. The two essential features of a pond are easy access for the ducks and ease of cleaning for you. Easy access means the ducks can easily get into the pond and just as easily get out, even if the water level gets low. Ease of cleaning a small pond is essential because accumulated droppings will quickly make the water unhealthful. In freezing weather, a recirculating pump may be used to keep an area open for the ducks to bathe in.

A Kiddie Pool Will Do

A small, rigid plastic wading pool makes a suitable duck pond—but not an inflatable model, as sharp duck toenails can rip the material. Ducks will turn a pristine pool of water into a muddy mess in no time, so position the pool where it can be easily emptied and refilled every day. If it isn't small enough to tip over by hand, it must have a drain plug, or you will need a

small, portable submersible pump to empty it. A pool with a slide provides an additional feature for ducks to enjoy.

The water used to fill either a pool or a pond must be free of harmful chemicals. And that warning extends to not allowing your ducks to access your, or a neighbor's, chlorinated swimming pool. Not only is the chlorine bad for ducks, but once they get into a pool, they may not be able to get back out.

ABOVE: *A kiddie pool can keep a flock of ducks perfectly happy, but the water must be changed daily.*

What Not to Do

Every now and then I hear about someone who got the bright idea of repurposing an old bathtub as a duck pond. Even if the tub is sunk into the ground so a duck can easily get in, the duck may not have such an easy time climbing out of the smooth tub if the water level is lower than ground level. The sad outcome is a drowned duck.

An ornamental fishpond is also not a suitable place for ducks. I once had a koi pond on the opposite side of the fence from my duck pond. Somehow the ducks got into the koi pond and ate some of the fish, as well as most of the water lilies. And I did not have a good time cleaning the duck muck out of that koi pond.

On the other hand, a koi pond kit (without the koi) or a garden pond kit offers a suitable option for a duck pond. If you have a big enough yard, you might excavate a larger natural pond. The latter is the type of duck pond we now have on our Tennessee farm.

Some duck owners use a heating element—the kind used in a birdbath or livestock water trough—to keep the water in a small pool from freezing in the winter. If you are inclined to try this, ensure that your setup is safe: Water and electricity can be a dangerous combination, and ducks add an element of unpredictability. And make sure they can’t get tangled in any cords.

ABOVE: *A small tub of water with a safely installed heating element gives these ducks access to water all winter.*

DUCK TALE

Foiling a Fox

A young red fox once trotted past our duck pond in broad daylight and was attracted by the swimming Mallards. When the ducks spied the fox, they moved closer together into a tight group. Foxes are excellent swimmers, so I watched in fear and fascination as the fox stalked around the shoreline, following the ducks as they swam around, just out of reach.

Maybe the fox was too hungry to play duck games, or maybe it wasn't quite ready to take on a whole flotilla of ducks. At any rate, after making two complete circuits around the pond, the fox skulked back into the woods while the ducks quacked as if mocking it with loud laughter.

Ponds and Predators

A large natural pond has the advantage of being self-maintaining, meaning you don't have to spend time emptying and refilling it. Another advantage is that the water is deep enough for the ducks to dive under when threatened by a hawk. Ducks also keep a natural pond clear of encroaching vegetation, as well as mosquito larvae, while obtaining some of their own sustenance.

A large pond also offers plenty of room for a platform, or floating island, in the middle of the water. The ducks will rest on the platform, where they are less vulnerable to ground predators, compared to resting on the shore. A covered platform offers additional protection from aerial predators, as well as a potential nesting site.

However, a pond, no matter how large, does not provide complete safety from predators, especially those that are skillful swimmers. And compared to a kiddie pool, a large natural pond is more susceptible to attracting bullfrogs and snapping turtles. Bullfrogs eat only live food, including ducklings. Snapping turtles will attack a full-grown duck by grabbing a leg and dragging the bird underwater to eat it.

Introducing Home

Depending on the weather, ducklings raised in a brooder (see Chapter 6) won't be ready to live outdoors until they are fully feathered—at about 7 weeks for mallard-derived breeds and 14 weeks for Muscovies. Until then, prevailing weather may mean they still need heat, especially at night.

Partially grown or full-grown ducks may be turned loose in a safe yard. If they are of a breed that tends to fly, clip one wing of each bird so it doesn't decide to explore the neighborhood. After your ducks get well acquainted with their new home and learn they will always have plenty of good food to eat, fresh water to drink, and a safe space to play, they will be content in their new home.

ABOVE: *At about 7 weeks of age, these young Campbell ducks are happily exploring the limits of their newfound freedom.*

After at least a week of confinement, you then may let your ducks out of their fenced yard during the day, for instance to free range or to splash in a pond outside their fence. Just open their gate and let them wander out if they want to. Don't chase or herd them out. Initially they may not go out at all. Give them time to explore on their own.

Their first time out, they may not be ready to go back into their yard at dusk. You can encourage them by walking behind them toward the open gate. If you've taught your ducks that calling out "Duck, duck, duck" means feeding time, they will most likely come running through the gate on their own.

Within a few days they'll voluntarily return to the yard when they see you coming, and eventually they will enter the yard on their own at the usual time. Then all you have to do is remember to close them in for the night.

DUCK TALE

Merry-Go-Round

Our young Khaki Campbells had a small coop inside a fenced yard that did not include the pond. When they had grown big enough to spend daytime hours on the pond, we opened the gate to let them out. The first evening, while they were resting on the shore of the pond near the gate, the time came to herd them back into their yard. My husband and I thought if we both herded them along the fence toward the open gate, the gate would block their way and they would turn and go right into the yard. Boy, were we wrong!

As it turns out, one of us should have stood by the gate while the other did the herding. Because instead of going through the opening, those wily ducks dodged around the gate and waddled single file along the fenceline all around the outside of the yard until they got back to the open gate, whereupon they finally went in. And thus the routine was established. Forever after, every evening before returning to their yard, those ducks insisted on first parading around the outside of the entire fence.

6

HOW DO I BROOD DUCKLINGS?

Ducklings raised without a mother duck must be started in a brooder that offers safety, warmth, food, and water. Although a sturdy cardboard box makes a good brooder for baby chickens, it's not the best option for ducklings because they play in their drinking water and can rapidly turn the cardboard to mush. And because they make such a mess of the brooder, ducklings should not be brooded together with baby chicks.

The Brooder

For their first day or two ducklings spend a lot of time resting. During that time they require little more than about ¼ square foot per bird. As soon as they

become active they will need three times that space. At 2 weeks of age, their space needs will double. That number doubles again by the third or fourth week and doubles again by the fifth or sixth week, by which time they should be big enough and the weather warm enough for them to spend time outdoors (see here).

An extra-large plastic storage tote, in the 100-gallon range, with a snap-on lid (cut a hole in it for ventilation) to secure it from predators, makes an easy-to-clean brooder for a few ducklings for the first couple of weeks. A kiddie pool or a large livestock watering tank (stock tank) makes an easy-to-clean duck brooder, provided it is located in a garage or outbuilding where predators can't gain access. A waterproof container is preferable, as it won't be demolished by moisture. The bedding does get damp, however, and must be cleaned out and replaced every other day or so to keep it from getting moldy.

Another option is to brood the ducklings on the floor of a warm, secure outbuilding with a deep layer of bedding. The advantage is that the ducklings will have more room to move around, and therefore make less of a concentrated mess with their feed and water. A door with access to a fenced yard would facilitate letting the ducklings out for sunshine and exercise when the weather is conducive.

A brooder provides baby ducklings with safety, warmth, food, and water.

DUCK TALE
The Bekins Brooder

Although a cardboard box doesn't make an ideal brooder for ducklings, it'll do in a pinch. When my husband and I moved to our Tennessee farm we didn't have a proper brooder for ducklings, but we had plenty of big sturdy boxes from the Bekins moving company. So we set up one as a brooder, with automatic water and a drain to deal with splashes.

Into one corner of the box we inserted a low-pressure cup drinker on a short length of PVC pipe connected to a garden hose. Around the cup we attached a plastic sheet to protect the cardboard from moisture. We nestled the cup into a 6-inch drain elbow inserted into the bottom of the box to channel splashed water to a 5-gallon bucket underneath the brooder box, which we raised on blocks to accommodate the bucket.

This Rube Goldberg brooder lasted just long enough for the ducklings to grow big enough to live outdoors, by which time the Bekins box was trashed beyond recognition.

Brooder Heat

The typical source of brooder warmth is a light bulb or infrared heat lamp screwed into a metal reflector, but a hot glass bulb can shatter if splashed with cold water. *Do not* use a shatter-resistant bulb coated with Teflon (PTFE). When warm, it releases toxins that will kill your ducklings in nothing flat!

A safer alternative, and a good investment if you plan to brood more ducklings in the future, is a small sealed-panel infrared pet heater. It won't emit light, so you'll need to provide a source of light during the daytime. Hang the heater by a chain that allows you to raise the panel as your ducklings grow.

Regardless of the heat source, start the brooder temperature at 90ºF (32°C). Decrease it 5°F (2.8°C) per week until you get down to ambient temperature or 70°F (21°C), whichever comes first. If the days are warm and nights are cool, you may need to provide heat only at night after the first couple of weeks. Once the ducklings have feathered out, they won't be bothered by a temperature as low as 50°F (10°C).

To gauge brooder temperature, you don't need a thermometer. Just watch how your ducklings act. If they are normally active, they are comfortable. If they huddle under the heater and complain loudly, they are cold. If they press as far as possible away from the heat and pant, they are too hot. Raise or lower the heat accordingly.

As they grow, the ducklings will naturally generate more body heat and rely less on artificial heat. The more rapidly you reduce the brooder heat (by raising the heater panel or, if you're using bulbs, reducing the wattage), the more rapidly your ducklings will feather out and become less dependent on supplemental heat. The sooner they can live outside, the easier a time you will have keeping their living space clean and dry.

ABOVE: *The ducklings will gather under the heat lamp if they feel chilled or move away from it when overheated.*

Brooder Bedding

Good sanitation throughout the brooding period means dealing with all the moisture and fluid droppings ducklings generate. At least 3 inches of absorbent bedding, such as shredded paper or wood shavings, will absorb moisture, but it must be replaced as it becomes soaked. Changing the bedding often enough to keep the ducklings healthily dry can get expensive.

Some waterfowl keepers use bath towels as the bedding, changing to freshly washed towels as often as necessary to keep the brooder environment healthful. Another option is to use puppy pee pads or human incontinence pads (also called bed underpads) to soak up moisture and odor. These pads are either washable and reusable or single use and disposable. Towels or pads are good

options for when ducklings are first placed in the brooder and might be tempted to nibble on bedding.

You can use loose bedding under the pads to absorb excess moisture. One good option for this purpose is construction or mortar sand. More absorbent is pine pellet bedding, which is relatively odor free, less dusty than wood shavings, and longer lasting. It's marketed as stall bedding for horses and other animals, and as litter for cats. The instructions on the bag suggest the pellets be moistened to fluff them up before use, but I use them straight from the bag and find they absorb brooder moisture quickly enough on their own.

Woodstove pellets are similar to bedding pellets, and some brands are sold as livestock bedding as well as stove fuel. Avoid stove pellets made of hardwood, which are not nearly as absorbent as pine, and avoid brands that include an accelerant (a hazardous chemical additive that makes stove pellets easier to burn).

You can avoid messy bedding altogether by brooding your ducklings on hardware cloth with a water-collection pan, such as a plastic underbed storage tote, underneath the brooder. Excess water drips into the tote, which may be dumped and rinsed out as needed without having to remove the birds from the brooder. Most of the time the solid waste gets trampled on and pressed through the wire as well. A piece of plywood or other solid surface over a portion of the hardware cloth, away from the drinker, gives the ducklings a comfortable resting spot.

Drinking Water

Ducklings that arrive in the mail, or are fresh from an incubator, can be a little too eager to drink. When first offering water to ducklings, watch to make sure they don't overdo it. A dehydrated duckling that drinks too much at once can go into shock.

If ducklings seem too keen on filling up with water, give them access to the drinker for only 10 to 15 minutes, then remove the water for 15 to 30 minutes. After they have had four of these sessions at the water fount, with time to rest after each session, they should slow down enough for you to permanently return the drinker to the brooder. A probiotic formula designed for baby chicks added to the drinking water during the first week will give your ducklings a healthy start.

That ducklings love so much to play in water leads to two serious problems: They can quickly make a mess of even the best-kept brooder, and they can just as quickly make an unsanitary mess of their drinking water. An open source of drinking water, such as a pan or bowl, is therefore unsuitable for brooding ducklings. For the first two weeks, a satisfactory container is a circular chick waterer that screws onto a water-filled jar.

Placing the drinker in a pie tin or similarly shallow container helps keep moisture under control. Better yet, place the drinker on a hardware cloth platform with a shallow catch basin underneath.

Water Rations for Ducklings (Approximate)

AGE IN WEEKS	CUPS PER DAY PER DUCKLING
1	1
2	2 1/2
3	2 3/4
4	3
5	3 1/2
6	5
7	6 1/2

After only a few days, waterfowl outgrow a regular chick drinker. At that point they also need water deep enough to submerge their heads. A trough fount is suitable, provided it has the following features.

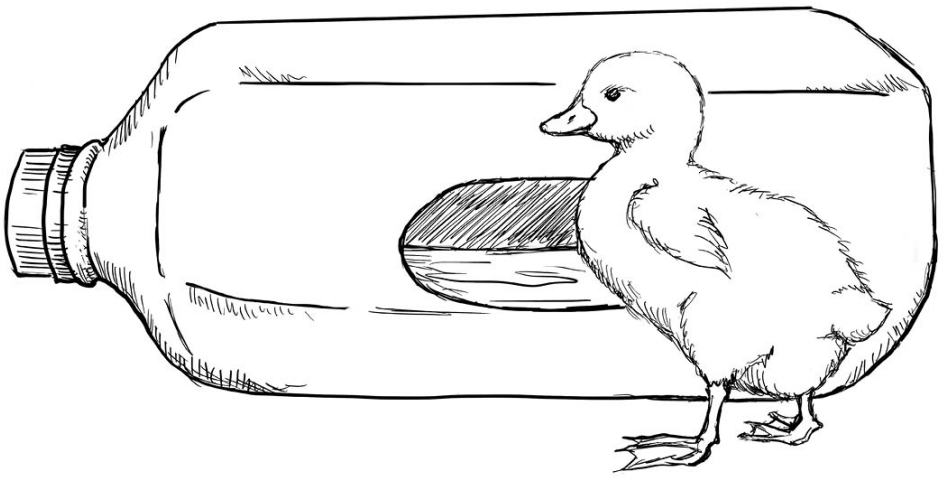
- Difficult for the ducklings to tip over
- Placed over a drain to channel away spills
- Covered with a wire guard to prevent swimming and pooping in the water (and the wire guard is big enough for ducklings to get their heads through)

You can make a duckling drinker from a plastic food container of appropriate size. For instance, a margarine or cottage cheese tub, or other similarly shallow

container, works well for babies. Cut a hole into the lid along one edge, just a little larger than the size of a duckling's head, through which it can drink and wash its face, but can't climb in for a swim.

ABOVE: *Set the drinker on a hardware cloth platform with a large tray underneath to catch drips.*

A milk jug, an ice cream tub, or a plastic coffee canister is more suitable for growing birds. Larger ducklings tend to push on or try to step on the drinker, possibly tipping it over unless it's anchored down. Clean rocks placed in the drinker will make it bottom heavy and therefore more stable. Or you might tie the drinker to the side of the brooder. To initially encourage your baby waterfowl to use your homemade drinkers, attract their attention by floating a little finely chopped lettuce on the water.



ABOVE: *Homemade drinkers are easy to make from a variety of recycled containers.*

DID I MENTION THAT DUCKLINGS LOVE WATER?

Right from the beginning, ducklings in a brooder take advantage of their drinking water to make a mess. Swimming is so instinctive that ducklings lacking access to water deep enough to swim in will dip their bills into the drinking water and make motions as if bathing.

You can indulge the passion of your ducklings for water by offering occasional brief supervised baths in shallow, clean water—in a sink, dishpan, bathtub, or kiddie pool. Just be sure the ambient temperature is warm enough to prevent a chill, dry off the ducklings before they get soaked through, and return them to their warm brooder.

Raised naturally, newly hatched ducklings will jump right into a pond and swim with their mother. Mama controls how long her babies stay in the water and lets them know when they must come out. Further, the mother duck has a well-developed oil gland that she uses to waterproof her plumage. This oil rubs off the mother and onto the ducklings until they acquire their own.

Without a supervisory mother duck, however, ducklings may play in the water long after they should come out, becoming soaked and chilled, and possibly ill (or worse). Because their waterproofing oil gland doesn't develop until they are a few weeks old, their overly wet down may stick together and waterlog. For this reason, ducklings in your brooder should never have unsupervised access to water deep enough to swim in, which includes any type of drinker the little birds can climb into.

Safety Precautions

As unbelievable as it may seem, ducklings can actually drown. Drowning most often occurs when they get into water they can't get out of. They may jump or fall into a kiddie pool, for instance, and by the time they've finished splashing around, the water level is too low for them to be able to climb back out.

Water that's contaminated with chemicals, including swimming pool chlorine, oil, sludge, muck, or mud, can also lead to drowning. Prevention involves ensuring your ducklings have no opportunities to swim in foul or chemically treated water or in a pond, pool, or basin that does not provide easy exit. Better yet, never let ducklings or partially grown ducks swim unsupervised.

Waterlogging does not require water deep enough to drown in. Ducklings can splash so much water around the brooder and get themselves so thoroughly soaked that their downy coats no longer keep them warm. As a result they can chill and maybe even die.

If your ducklings do manage to soak themselves, rinse off each duckling in warm, not hot, water. Dry it thoroughly with a terry towel. Put it in a warm, dry place, preferably back into the dried-out and freshly littered brooder. Cross your fingers that all the ducklings will make it.

ABOVE: *For the first few weeks, ducklings brooded without a mother must be supervised and carefully dried off after playing in water.*

Duckling Feed

Ducklings should have access to feed at all times. Feed them just enough twice a day to last until the next feeding. Since their appetites will grow at an alarming rate, you will need to constantly adjust the amount supplied at each feeding. Allowing ducklings to go hungry will result in a frantic frenzy when they finally get something to eat, turning your cute downy ducklings into bug-eyed minimonsters encrusted with caked-on feed.

Clean out the feeder frequently, taking care not to leave old, stale feed in the bottom or corners. Initially you may use a feeder with little round holes designed for baby chicks. Watch carefully as your ducklings grow. When they look like they are starting to have trouble fitting their heads through the holes, switch to a trough with a wire guard that prevents ducklings from walking in the feed.

Ducklings need water to wash down dry feed. They fill their mouths with feed, waddle to the water for a drink to wash it down, then waddle back for another mouthful. Before long, a trail of dribbled feed marks the path between

the feeder and the drinker. If the drinker is close to the feeder, the feed will soon be a wet mess and the water will turn to sludge.

To avoid these problems, you can moisten the feed with water or skim milk, but you will have to offer less feed at a time and therefore provide feed more often. Left too long, moistened mash clumps together, discouraging your ducklings from eating. Furthermore, in the warmth of the brooder it may turn sour or moldy, causing illness.

Finding a commercial starter ration formulated for ducklings can be a challenge. A good substitute for the first few days is mashed hard-cooked egg. A turkey starter, game bird starter, or high-protein chick crumble may then be fed. If you have a choice, select nonmedicated starter, since (unlike chicks) ducklings don't need to be medicated against coccidiosis. But even though medicated chick starter isn't beneficial, neither is it harmful to ducklings, if that's your only choice.

ABOVE: *Offer ducklings free-choice access to feed at all times, being sure to clean out the feeder and provide fresh ration daily.*

Adding Niacin

Any starter that's not formulated for ducklings must be fortified to prevent niacin deficiency, which results in leg deformities and lameness. Duck starter ration contains sufficient niacin, but a starter ration not intended for ducklings may not. To prevent deficiency, supplement any nonduck starter ration with food-grade brewer's yeast at the rate of 3½ cups per 10 pounds of starter. (Livestock-grade brewer's yeast, from farm stores, is cheaper, but you'll need to use three times more of it.)

An alternative source of niacin is BVS (Best Veterinary Solutions) Poult Start, a vitamin and mineral pack formulated for baby turkeys, available from Metzer Farms, among others. Add it to the ducklings' water at the rate of ½ teaspoon per 3 gallons of water.

Niacin deficiency affects ducks up to about 10 weeks of age, peaking at about 3 weeks. By the time ducks are mature enough to lay, they no longer need niacin supplementation.

How Much to Feed

A growing duckling will eat 1 to 2 ounces of commercial ration per day, gradually increasing to about half a pound per day as it reaches maturity. When warm weather allows ducklings to spend most of their time grazing, you can cut their commercial feed back to the amount they can clean up in 15 minutes, twice a day. When they reach the age of 1 month, you may feed only once a day, preferably at night, so they'll be hungry in the morning and take greater advantage of natural forage.

Ounces of Feed per Day per Duckling (Approximate)

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7
Aylesbury/Muscovy/Pekin	1.1	3.8	5.8	5.8	7.4	8.2	8.9
Magpie/Welsh Harlequin	0.5	1.7	2.6	2.6	3.3	3.7	4.0

To determine ounces per day for an entire flock, multiply by the number of ducks in the flock.
To determine pounds per day for an entire flock, divide the ounces for the entire flock by 16.
To determine pounds per week, multiply the pounds per day by 7.

Ounces of Feed per Day per Duckling (Approximate)							
Campbell/Runner	0.5	1.5	2.3	2.3	3.0	3.3	3.6
Other large breeds	0.8	2.6	4.0	4.0	5.0	5.6	6.1
Mallard	0.3	1.1	1.7	1.7	2.1	2.3	2.5
Other bantam breeds	0.2	0.6	0.9	0.9	1.1	1.2	1.3

To determine ounces per day for an entire flock, multiply by the number of ducks in the flock.
To determine pounds per day for an entire flock, divide the ounces for the entire flock by 16.
To determine pounds per week, multiply the pounds per day by 7.

Outgrowing the Brooder

Ducklings are incredibly hardy and, properly cared for, are not particularly susceptible to disease. With care they easily remain healthy and grow fast. By the end of the first week, they develop distinguishable little wings. By the end of the second week, they have tail feathers. Body feathers come in during the third week and fill out in the fourth week. By the end of the fifth week most of the feathers are in, and the birds look like miniature ducks.

Just about the time they are fully feathered, they molt—that is, some of their feathers drop out sequentially, to be replaced by new feathers. Before the birds reach maturity, they go through another partial molt. Mallard-derived ducks are fully feathered at 6 to 8 weeks, and Muscovies at 14 to 16 weeks.

When daytime temperatures remain above 65°F (18°C) and nights are not overly chilly, ducks may be moved outdoors permanently at about 4 weeks. At this age they are too young to be turned out to graze but may be kept in a coop with a run that offers protection from hot sun, wind, and rain and provides shelter for the night.

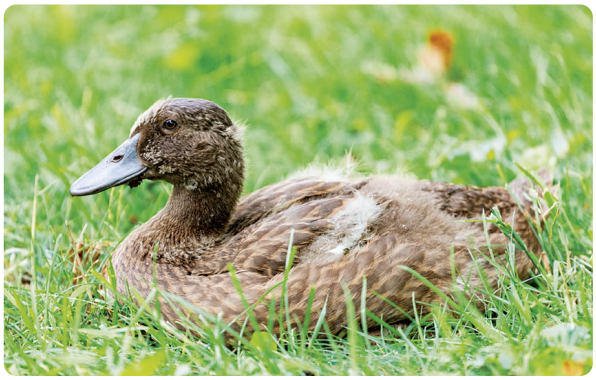
When you first turn ducklings outdoors, keep a close eye on them. They have an uncanny ability to find escape routes, get stuck in odd nooks, or get separated from their feed and water. If their yard is large or they are being turned out with mature ducks, confine them to a small part of the yard for the first few days, enlarging their space only after they have had time to get used to the new environment.

ABOVE: *3 days*

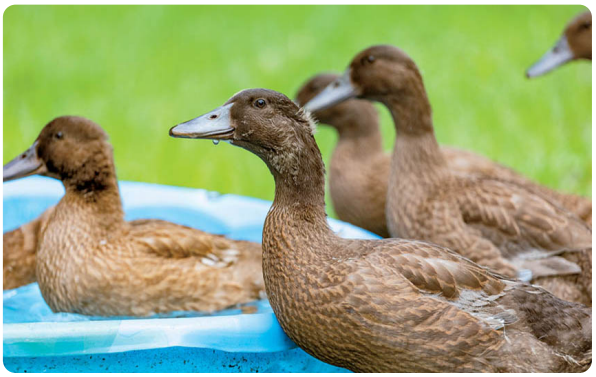
ABOVE: *10 days*

ABOVE: *2 weeks*

ABOVE: *4 weeks*



ABOVE: *6 weeks*



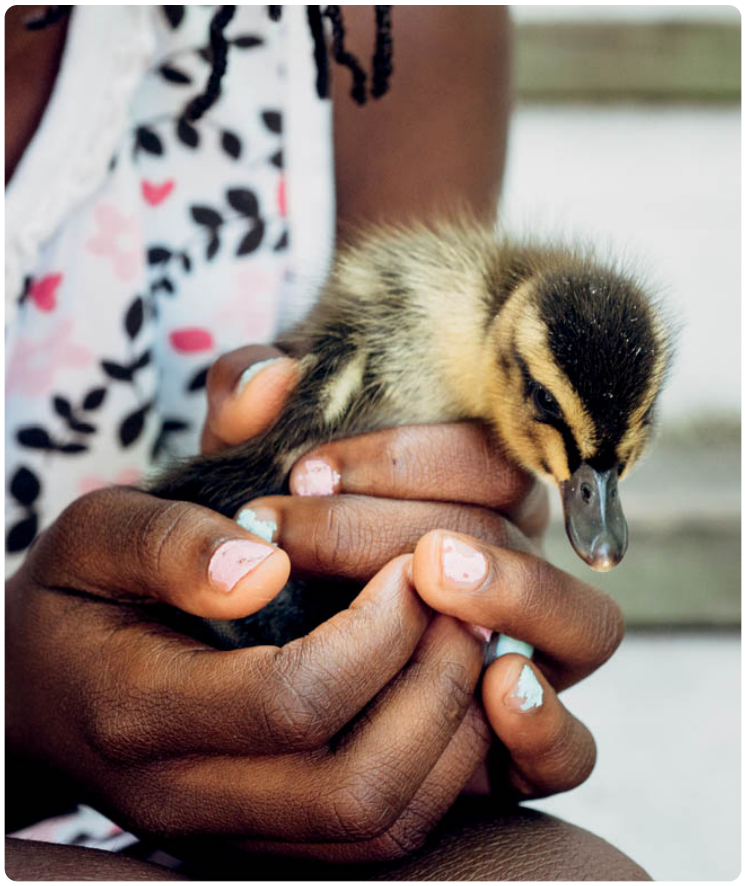
ABOVE: *7 weeks*

Imprinting

Ducklings imprint rather easily, developing a strong attachment to whomever they first see upon hatching. The natural purpose of imprinting is to allow a bird to recognize its own species by forming a bond with its mother and, later, to find a suitable mate. Ducklings that imprint on a human keeper will follow that human around, even after they mature.

Sometimes it can be difficult to convince an imprinted Muscovy drake to find his own mate, and once he does, he may challenge you when nesting starts to defend the mate he has chosen. That's because, while most ducks defend themselves by hiding, Muscovies defend with aggression. See Chapter 7 for information on dealing with an aggressive drake.

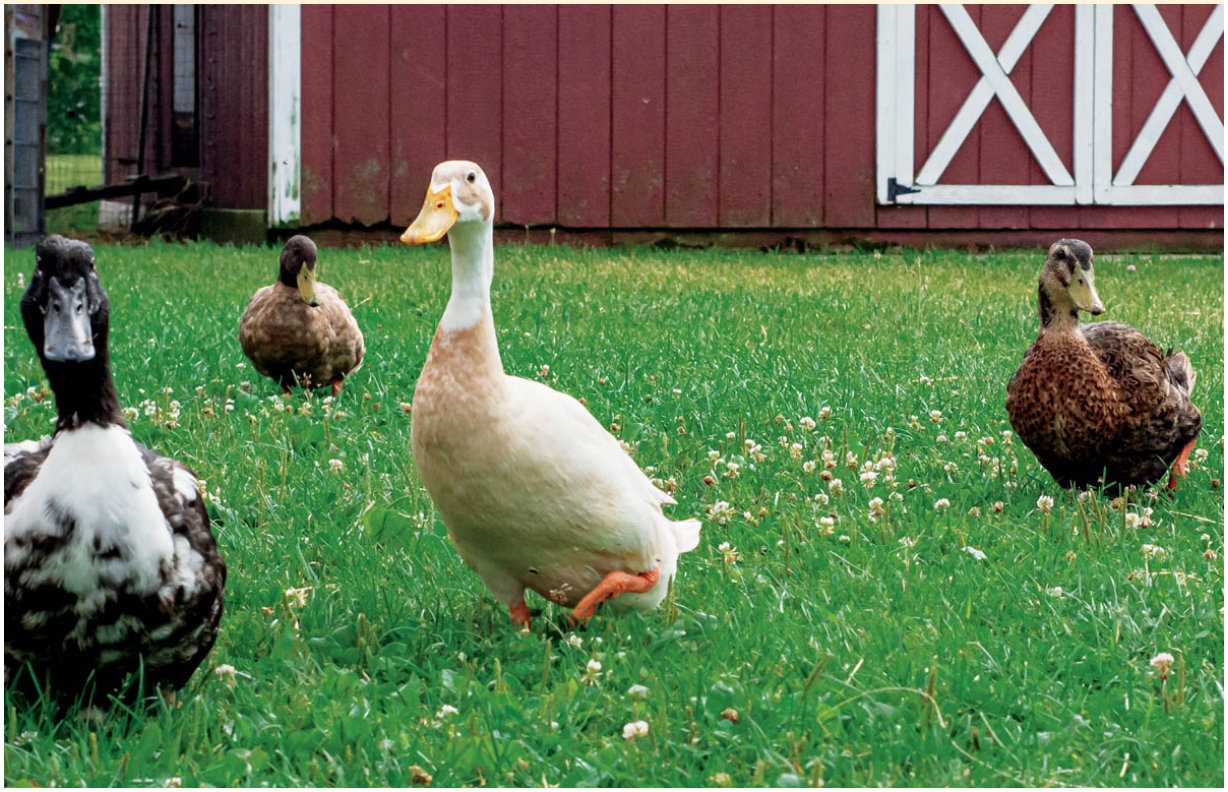
Aside from this one possible glitch in the system, if your goal in keeping ducks is to have backyard pets, imprinting gets them to bond with you from an early age and reduces the need to spend a lot of time later trying to tame them. The more time you spend with young ducks, the more strongly they will bond to you as adoring pets. Just don't overdo handling ducklings, and supervise children around baby ducks.



ABOVE: *Children should sit down while handling ducklings to avoid dropping them.*

7

ARE DUCKS EASY TO CARE FOR?



The daily activities of ducks are pretty simple: eat, swim, mate, preen, and nap. Although ducks can handle these activities with little interference from humans, a few things are important for the duck keeper to know. Some breeds fly and may need to be grounded. When ducks molt they leave feathers

all over the yard. Some may fight with each other or even become aggressive toward humans. Occasionally you will need to catch and carry a duck. And once in a while a duck may need health care.

Restricting Flight

Young ducks may fly over a low fence when startled or if attracted to something on the other side. If you can keep your young ducks from flying, they most likely won't attempt to fly over a fence after they mature. Muscovies are unique among ducks in liking to perch on a fence post or tree branch, and they don't always come back down on their own side of the fence. You can stop waterfowl from flying in two ways—one is permanent, the other temporary.

The permanent method is to clip a wing tip. The tip of the wing is called the pinion and removing it at the first joint is called pinioning. Pinioning throws the bird's flight feathers out of balance, making flight difficult.

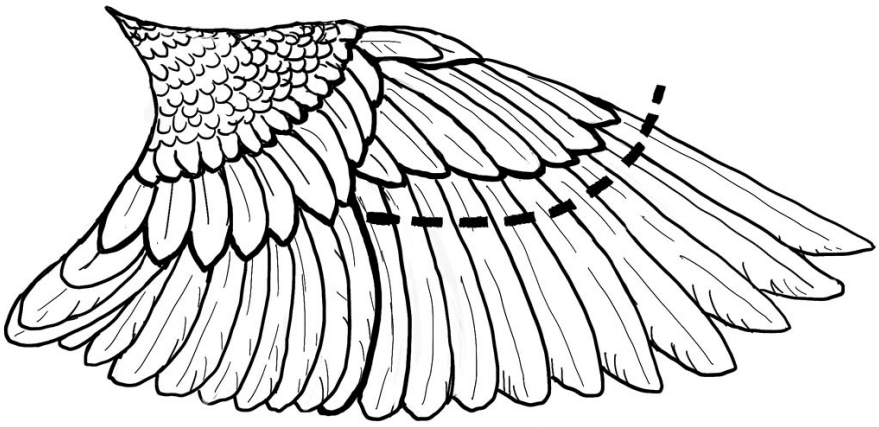
When hatchlings are pinioned, they barely seem to notice, and the wing heals rapidly. Pinioning gets more difficult as birds get older. Pinioning of mature ducks should be done by a veterinarian or other waterfowl professional. Pinioning is one of the methods recommended by the US Fish and Wildlife Service to mark captive-bred Mallards, as described in Chapter 1.

- Call
- Crested
- East Indie
- Mallard
- Muscovy

BREEDS THAT (USUALLY) DON'T FLY

- Ancona
- Appleyard
- Aylesbury
- Buff
- Campbell
- Cayuga
- Duclair
- Magpie
- Pekin
- Rouen
- Runner
- Saxony
- Swedish
- Welsh Harlequin

The temporary method of restricting flight is to clip the flight feathers of one wing, which serves the same purpose as pinioning except that the clipped feathers grow back during the next molt. If you clip young ducks to keep them grounded while they grow, you may not have to repeat clipping once they mature, especially after your ducks learn that staying put means always having good things to eat, plenty of water to drink, and a safe place to rest. Except with Mallards; with them, all bets are off.



ABOVE: *Clipping their flight feathers keeps ducks grounded. The procedure must be done annually, as the feathers regrow after each molt.*

DUCK TALE

Bye-Bye Mallards

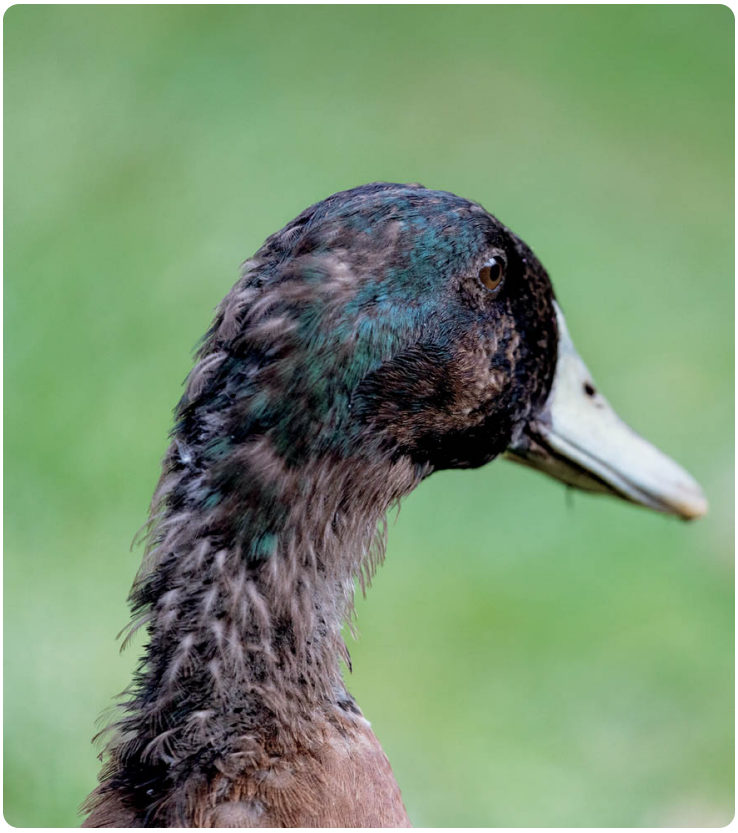
A few domestic Mallards lived in the pond outside our kitchen window. One summer a small contingent of wild mallards joined them. After a few weeks the wild ducks left. We thought that was pretty neat. The next summer wild mallards again joined our ducks on the pond. When they left, one of our ducks was missing. That wasn't so neat.

The following summer the wild mallards were back. We wondered if our old duck was among them. Would she stay behind? But this time when they left, *all* our ducks went with them. And none ever came back. That's when we decided to switch to nonflying Khaki Campbells.

Molting

Ducks, like other birds, periodically replace their worn-out feathers with a full set of fresh plumage in a process called

molting. Young ducks go through two consecutive molts. After maturity, they experience one complete molt each year, generally in late summer or early fall after the nesting season but before cold weather sets in.



During this fall molt, Mallard drakes, like their wild counterparts, take on the camouflage pattern of the females. They do this so they can more easily hide from predators. This molt is called the eclipse or basic molt. Unlike chickens and most other birds, which lose their flight feathers one at a time, during this molt Mallards drop all 10 primary wing feathers at the same time. So they can't fly for some three to five weeks while the feathers grow back.

Just before breeding season, Mallard drakes go through a second, partial, molt that restores their more colorful plumage. This molt is called the nuptial molt. All drakes of mallard-derived breeds molt in a similar manner, although the color change may not be as dramatic.

Unlike Mallards, Muscovies go through a single annual molt. Toward the end of summer, the plumage of nonwhite Muscovies often becomes faded, then brightens back up after the fall molt.

All ducks in a domestic flock may not molt on the same exact schedule or take the same amount of time to complete the molt. However, ducks that molt entirely out of season may have experienced a stressful change in their environment, diet, or state of health that should be investigated.

During the molt, ducks scratch and preen more than usual. They may also become uncharacteristically crabby. Females that are laying will decrease production, or stop laying altogether, because the energy they normally use for producing eggs goes into producing feathers instead.

Since feathers consist mainly of protein, molting ducks need more high-protein foods. Good sources of supplemental protein include mealworms, crickets, dry cat kibble, and a high-protein game bird or turkey layer ration.

Aggressive Behavior

Drakes, especially Muscovy drakes, can get pretty aggressive. Muscovies are large and clumsy and can’t easily hide, so they

resort to aggression to ward off enemies. And their powerful wings and sharp claws make a formidable and dangerous combination.

The best way to keep a drake from getting mean is to recognize the potential problem when he's young. In the process of imprinting, a young drake can learn to think he's dominant over his humans. He learns this by getting away with nibbling, biting, or pecking. As he matures, he'll continue to think he's the one in control. So, at the first sign of aggression from a young duck, do what another duck would do—poke him back. Not just once, but every time he tries to nibble or peck.

When a grown drake shows signs of aggression, the worst thing you can do is scramble to get away. In doing so, you'd just reinforce his notion that he's the boss. Instead, do what drakes do to each other: Pin him to the ground and hold him down for as long as it takes for him to stop struggling.

By ceasing to struggle, he is capitulating. If you let him up before he stops struggling, he'll likely try for a rematch. Even if you win the first round, he may still try again. Give him a repeat performance for as many times as it takes for him to realize that you are the boss.

Notice how ducks gabble and posture while greeting one another. One way to minimize potential aggression is to take time to greet them in a similar manner. Another important way to minimize aggression is to teach dogs, children, and all others to move quietly among the ducks and never, ever chase or tease them.

Sometimes a seemingly aggressive drake isn't trying to be mean or pushy toward his human—he's just looking for a

mate. The easy solution is to make sure that each drake has at least three female duck companions.

During winter, when their hormonal activity is low, drakes are less likely to display aggression. This nonbreeding season is the best time to introduce new ducks to an existing flock to minimize confrontations.

How to Catch and Carry a Duck

Unless your ducks are tame pets, catching them for the first time can be a challenge. A poultry net (it looks something like a butterfly net) is handy for the purpose. Move slowly and try not to frighten the ducks into flight. If one crouches—a sign it is about to spring into the air—you might just catch it as it leaves the ground, especially if you have a net. Without a net, cornering a duck is the easiest way to catch it.

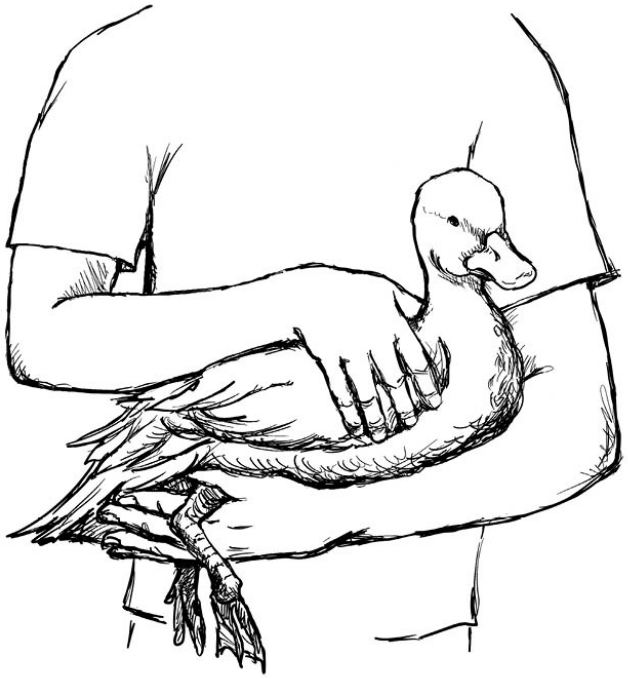
Once you have your hands on the duck, resist the temptation to grab it by the legs, which can easily snap if the duck tries to get away. A better plan is to hold it down with your hands over its back and on top of its wings. Give the duck a moment to calm down.

Then pick up the duck with your hands against its sides, holding the wings against its body. If the duck struggles, or if you otherwise have trouble picking it up, another way is to bring its wings together over its back and lift it by the wings

with one hand, while putting your other hand underneath to take some of the weight.

To carry the duck, cradle it with one arm underneath for support and the other arm securing the wings. When carrying a duck, especially a Muscovy, watch out for the claws. If you have trouble carrying a heavy duck under one arm, you would be wise to carry it with one hand grasping each wing joint, where the wing joins the body, keeping the bird's back toward you and its claws away from you.

When handling ducks, take great care not to frighten or excite them. You can tell they're extremely frightened if they wobble instead of waddle or move around by using their wings as crutches. Whenever you work around ducks, remain calm and move with deliberation. Handle a duck gently and reassure it before releasing it. If you spend enough time with a duck, catching it won't be a stressful ordeal for either one of you.



ABOVE: *Always support the duck's body while holding the wings still.*

What Health Issues Do Ducks Have?

Ducks remain healthy when fed a balanced diet, provided a continuing supply of clean, fresh water for drinking and bathing, and furnished with adequate facilities for safety, comfort, and sanitation. Diseases become a threat mainly where ducks are kept in crowded, unsanitary conditions. Any health problems that do arise are more likely to involve an injury or noncontagious condition than serious diseases.

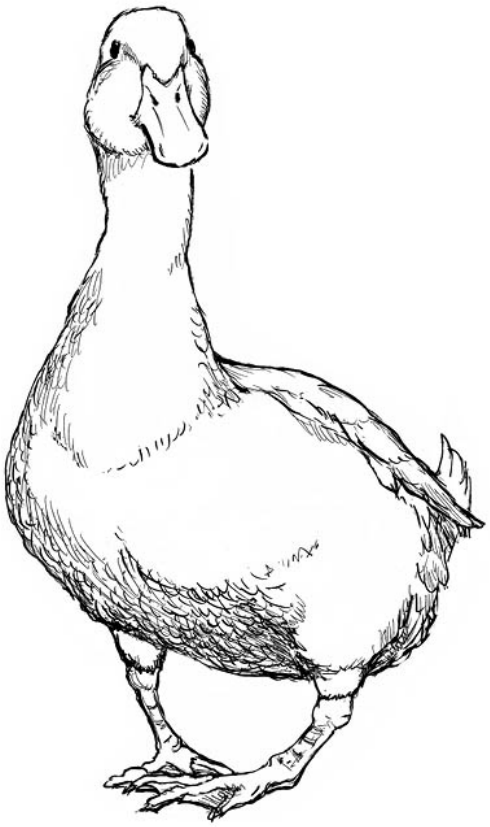
Feet and Legs

Ducks have structurally weak legs, so their most common affliction is lameness. Their legs are made for flying and swimming, not walking. Lameness may occur if you grab a duck by the leg, or if it pulls its leg free after catching it in a fence. Lameness may also result from a glass sliver, a thorn, or a sharp stick lodged in the footpad, in which case you must remove the sliver and disinfect the foot. An injury is easy to diagnose because it typically involves only one foot of one duck or duckling. Other than injury, ducks are prone to a few issues with their legs and feet.

NIACIN DEFICIENCY

A nutritional deficiency—most commonly, insufficient niacin—affects an entire brood of ducklings. Their condition may decline gradually or the ducklings may go from looking fine one moment to suddenly being unable to walk. Unless the condition is corrected, the ducklings eventually will be unable to reach feed and water.

The culprit is a poor-quality ration. The solution is to immediately switch to a quality brand formulated specifically for ducks. If you have been feeding your ducklings chick starter, add food-grade brewer's yeast at the rate of 3½ cups per 10 pounds of starter. Or add BVS (Best Veterinary Solutions) Poult Start to the ducklings' drinking water at ½ teaspoon per 3 gallons of water. Within a day or two, your ducklings should be back to normal.



ABOVE: *Niacin deficiency results in leg deformities and lameness.*

BUMBLEFOOT

A duck kept on dry, hard-packed ground can develop an infected abscess that hardens into a callus on the bottom of the foot pad. This condition, known as bumblefoot, may involve one or both feet and most often affects the heavier breeds.

Treatment involves washing the affected foot, cleaning it with a bactericide, pressing pus out of the abscess, and removing the hard core if one is present. A really bad case may require a trip to a veterinarian for surgery and an antibiotic prescription.

Cover the wound with a gauze pad and place the foot in a neoprene waterfowl bootie (available online) designed to protect the foot from dirt and moisture. Isolate the convalescing duck in a quiet, secluded place with clean litter or fresh grass and clean drinking water, but no water for swimming until the foot has healed.

To prevent bumblefoot, keep the areas around feeding and watering stations clean, or frequently move the feed and water stations. Clear the duck pen of any sharp rocks and other pointed objects, such as nails, pieces of wire, or shards of glass. Cover hard surfaces such as concrete, gravel, or hard-packed soil with clean straw or shavings.

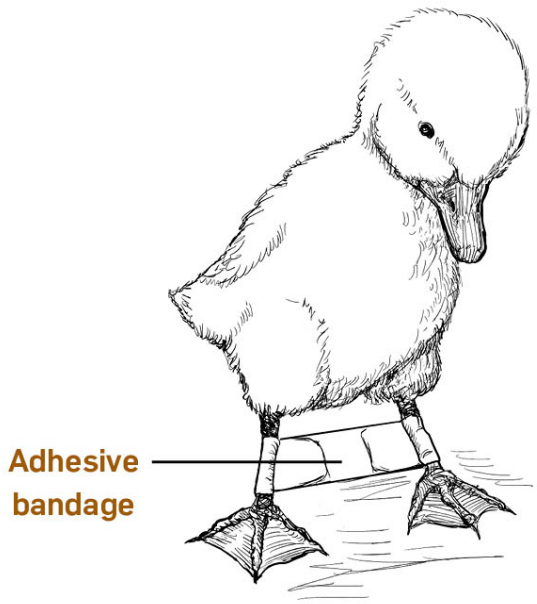
SPRADDLE LEG

If a newly hatched duckling is placed on a slick surface, its feet are likely to slide out from under it and splay in two directions, causing permanent damage. Once the legs start splaying, the duckling isn't yet strong enough to pull itself back upright.

The first thing to do is to ensure firm footing by placing ducklings on a properly rough surface, such as paper towels or hardware cloth. Affected ducklings may still not be able to stand, in which case you will have to bring the legs into a natural position.

A common method is to cut a ¾-inch adhesive bandage in half lengthwise, using one half for each duckling. With the pad between the duckling's legs, wrap one adhesive end around one leg and back to the pad. Then wrap the other adhesive end around the other leg.

Within a day or two the hobble should no longer be needed, and often will come loose on its own. If at that point the duckling still can't stand properly, repeatedly rebandage the legs until they gain enough strength to hold the duckling's weight.



ABOVE: *Prevent spraddle leg by keeping newly hatched ducklings away from slippery surfaces.*

FROSTBITE

The feet of all ducks are susceptible to frostbite. A sign of frostbite is pale feet that later turn bright red. Frostbite may occur when ducks congregate around a feeder or drinker surrounded by ice or packed snow. Keep the area around feeders and drinkers clear of ice and snow, and spread sand or straw over the frozen ground. Providing open water for swimming also helps prevent frostbitten feet. Try to keep at

least a portion of the pond free of ice, perhaps by installing a recirculating pump or using a heater designed to be submerged in water.

If you find a duck with frozen tissue, rapidly thaw the affected area with warm (not hot) water. Do not use any kind of heater, and do not rub the frozen skin, both of which will make things worse. Once the affected tissue has thawed, apply aloe vera gel. House the duck in a quiet, clean, secluded area to heal. Depending on the severity of the frostbite, healing can take several weeks. If the affected parts turn black, a veterinarian may prescribe an antibiotic and pain medication.

The large caruncles on the face of a Muscovy drake are also susceptible to frostbite. A sign of frostbite is caruncles that turn from red to dark brownish. To prevent frostbite, confine Muscovies indoors during icy, blustery weather.

Hen Issues

Ducks rarely encounter problems associated with egg laying. Still, for the health and safety of your ducks, be aware of the two most common of the rare egg laying issues.

EGG BINDING

When an egg becomes stuck in a duck's cloaca and cannot be laid, the hen is egg bound. This condition most often occurs in ducks that are just starting to lay. It may happen if the duck is trying to lay a misshapen egg, an egg with a soft shell, or a larger-than-usual double-yolk egg. Nutritional deficiency, obesity, or infection may also result in egg binding.

Suspect egg binding when a duck is listless, stands awkwardly with ruffled feathers, and has a distended abdomen. If you press gently against the abdomen of an egg-bound duck, you will feel the egg's hard shell.

Sometimes you can lubricate your finger with a water-based lubricant (such as K-Y Jelly) or petroleum jelly, then work your finger around the stuck egg to help it pass. Take care not to tear the duck's delicate tissue. Standing the bird in a tub of warm (not hot) water may then relax her muscles enough to allow the egg to pass, which can take as long as an hour. If the egg hasn't come out by then, relubricate and gently try to work it out. Breaking the egg to extract it is a drastic option that carries the risk of injuring the duck with sharp shards of shell and subsequent infection.

PROLAPSE

When a duck lays an egg, her vagina grips the egg and pushes it through the cloaca by prolapsing, or turning itself inside out, then withdraws back inside the duck. If the duck strains to lay an egg, the vagina may weaken and be unable to retract back inside. Tissue that protrudes outside the vent and remains prolapsed is a serious condition.

Prolapse is caused by the same factors that cause egg binding or by weakened muscles due to prolonged egg production or excessive mating. Treatment may be successful if only a small portion of oviduct is everted (inside out) and the treatment is begun right away.

Gently wash the protruding part. Coat it with an anti-inflammatory cream, such as hydrocortisone, then gently push

the tissue back into place. Move the affected hen to a warm, dry, secluded pen with reduced lighting to discourage laying while she heals. Reducing dietary protein will also help to discourage laying.

DUCK TALE

Healthy Ducks

Since 1970, when I started keeping ducks, I have rarely seen any health issues in my flock. Other than one case of penis paralysis during my early years of duck keeping, I can't recall a single injury or disease involving ducks, unless you count predators. Soon after we moved to Tennessee, red foxes started showing an interest in our ducks. The problem was easily resolved with better fencing. One of the great appeals of keeping ducks is that they are so incredibly hardy and disease resistant.

Penis Paralysis

Unlike the vast majority of birds, male ducks have a penis. They keep it tucked inside until they need it. During mating season

it can be as long as one-quarter the length of the drake's body. During the off-season the organ shrinks to about 10 percent of its mating size.

Penis paralysis, or phallus prostration, is a sad result of the domestication of waterfowl. Wild ducks breed at maturity and have a short breeding season. At other times of year they keep busy with more important things, such as migrating and finding enough to eat. Domestic ducks, on the other hand, have little to do to sustain themselves. They start breeding at a younger age, the males are often expected to breed more females than they would under natural conditions, and they breed for a longer season.

As a result, sometimes a drake overexerts his male organ to the point that he can't pack it in anymore. It bounces around behind him in the dirt and mud, while the drake wags his tail trying to put it away. Eventually it becomes dirty and scabby, dries out, and may break off. The drake may lose weight and die.

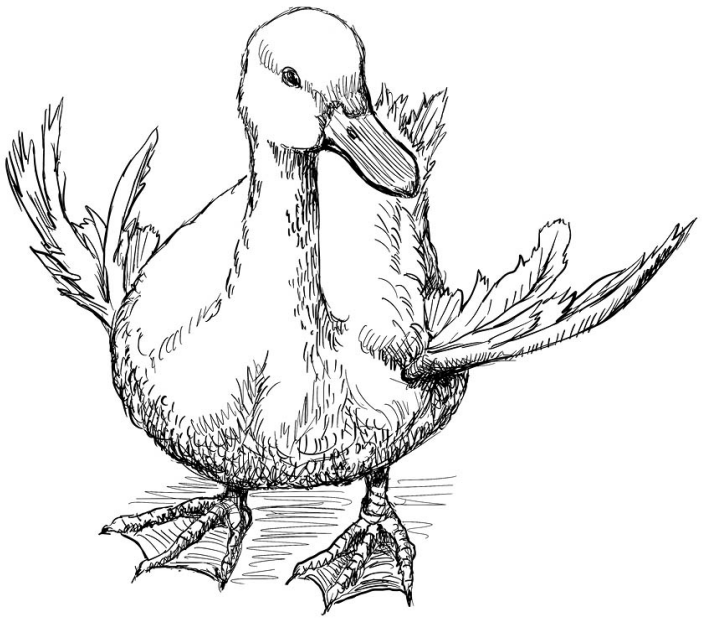
At the first sign that a drake's penis is not retracting as normal, isolate him in a clean area away from the flock to prevent further mating attempts. Apply aloe vera gel or other moisturizer and try to gently guide the penis back inside. If the penis does not retract after a couple of days, a veterinarian can determine if it is infected and provide treatment. Treated promptly, an affected drake should recover, although the condition may recur, especially if it is related to genetic weakness or old age.

Twisted Wing

Twisted wing is a condition in which the flight feathers of one or both wings angle away from the body. The deformity goes by various names: angel wing, airplane wing, crooked wing, slipped wing, and split wing. It occurs when either the primary feathers overlap in reverse order—over each other, rather than under, from outer to inner feather—or, more commonly, the entire last section of the wing flops to the outside, pointing away from the body like an airplane's wing. The condition is cosmetic only and does not otherwise affect a domestic duck's health.

Ducks raised for meat don't live long enough for this clumsy appearance to be an issue. But in ducks kept for show it is a defect. In all other mature ducks the condition, though not serious, mars the appearance of an otherwise beautiful backyard duck.

Twisted wing occurs because the flight feathers grow faster than the underlying wing structure. The heavy feathers cause the last (wrist) joint of the wing to twist outward. Once the bird matures, the affected wing awkwardly and permanently sticks out instead of gracefully folding against the body. One or both wings may be involved. Oddly, and for reasons unknown, when only one wing is affected, it is likely to be the one on the left.



ABOVE: *Twisted wing is more of a cosmetic problem than a serious health concern.*

Muscovies are more likely to be affected than other ducks, and drakes more commonly develop the condition than hens. Wild waterfowl do not have this problem, except when humans interfere with their natural diet.

Don't confuse twisted wing with a drooped wing, or so-called lazy wing. As ducklings grow, sometimes their little wings have trouble holding up all the heavy newly sprouting feathers, and one or both wings may droop downward slightly, without twisting outward. However, when a wing droops, watch for the possibility that it may begin to twist.

PREVENTION AND CORRECTION

You can easily prevent twisted wing by not feeding your ducks for unnaturally rapid growth, which means avoiding a high-calorie diet (such as a high-protein, high-energy ration), and especially one improperly balanced in vitamins and minerals for ducks. Once ducklings reach 2 weeks of age, gradually switch them over from starter ration to a grower or maintenance ration. Avoid overfeeding, especially if the ducks have limited opportunity for exercise, and don't think you're doing them a favor by feeding them bread and other processed foods that aren't even good for humans.

If you notice that a duck's wing is drooping or starting to twist outward, you can often correct the situation by switching to a diet of alfalfa pellets (available from most farm stores). Letting young ducks graze on good pasture is another way to keep them from developing twisted wing.

While a duck is still young, twisted wing usually can be corrected by using vet wrap to secure the last two joints of the wing for 4 or 5 days. The wrap will hold the feathers in proper position and help the wing grow in the right direction until the wrist joint becomes strong enough to support feather growth. To prevent binding as the wing grows, and to allow the bird to exercise its wing muscles, remove the vet wrap each evening and reapply it in the morning. The wing joint will be fully developed and able to support the wing properly by the time the bird reaches 16 weeks of age, after which a duck is no longer in danger of developing twisted wing.

When to Call a Vet

If your ducks exhibit several symptoms at once or incur sudden deaths, the situation is serious. Seek a diagnosis from your state's poultry pathology laboratory, located through your county's Extension office. The lab will probably want to examine several sick or recently deceased ducks to determine the cause.

Once you know the cause, you can take this information to a veterinarian to learn about suitable treatments and whether or not survivors will be carriers that continue to spread the disease. If necessary, the vet can euthanize any ducks that might be beyond treatment, as well as inform you how to clean your yard to make it safe for future ducks.

These signs, exhibited flock-wide, indicate something is seriously wrong that immediately should be addressed:

- Weak and listless behavior
- Ruffled feathers
- Crusty or sticky eyes
- Unusual body movements
- Loss of appetite
- Increased thirst
- Change in the color or consistency of droppings
- Inexplicable deaths

It's a good thing ducks are so naturally healthy, because locating a veterinarian who is knowledgeable about their diseases is nearly impossible. Luckily, most duck health issues are noncontagious and easily dealt with.

8

HOW DO I MANAGE DUCKS FOR EGGS?

With an explosion of interest in keeping ducks comes an equal explosion in the culinary uses of duck eggs. Suddenly everyone is touting the benefits of duck eggs, which can cost a pretty penny at the local farmers' market. Luckily, when you keep

your own ducks, you have the benefit of freshly laid eggs being readily available.

About Layer Ducks

Most duck breeds are seasonal layers. Hybrid layers, by way of contrast, are bred for efficient and consistent egg production. Aside from generally being more prolific, hybrids differ from the pure breeds described in Chapter 1 in that their offspring do not retain the same characteristics as the parents. The two main hybrid layer strains, developed at Metzer Farms in Gonzales, California, are Golden 300, also known as Gold Star, and White Layer, also known as White Star.

Golden 300 ducks are brown and drakes are black; White Layers have all-white plumage. Both types lay medium to large eggs with white or blue shells, 200 to 290 per year. They weigh 4½ to 5¾ pounds, do not fly, and have good foraging skills. They are somewhat excitable and have fair mothering abilities but are unlikely to go broody.

How Many Eggs Does a Duck Lay?

The best layers, managed under optimal conditions, may begin producing eggs at 18 to 20 weeks of age and continue laying nearly year-round. Mallard-derived ducks normally lay well for three years, and some strains continue to lay efficiently for up to five years. In a warm climate, Muscovies can also be prolific layers.

Breeds, and strains within breeds, that have been developed for meat or ornamental purposes do not lay nearly as well as breeds and strains that have been selectively bred for their laying ability. The best layers stop production only briefly during the fall molt. Laying also stops when nesting starts, so the top laying breeds generally do not have strong broody instincts.

LAYING FACTORS

How well ducks lay and the length of their overall laying season depend on these factors:

- Breed
- Strain
- Age
- Diet
- Health
- Weather
- Daylight hours

Ducks tend to lay in the early morning hours and typically lay an egg each day. The less productive breeds will lay a consecutive batch of eggs, called a clutch, and then take up to 2 weeks off before starting another clutch. If you leave a clutch

in the nest, a duck may start setting and stop laying for the season.

Egg Laying Rates and Egg Weights by Breed*		
BREED	**AVERAGE EGGS LAID PER YEAR**	**AVERAGE EGG WEIGHTS (OUNCES)****
Ancona	210–280	2.85
Appleyard	120–175	3.15
Aylesbury	35–125	3.45
Buff	130–180	3.0
Call	25–75	1.5
Campbell	165–210	2.8
Cayuga	100–150	2.85
Crested	100–130	3.0
Duclair	80–100	2.85
East Indie	40–100	1.75

*Overall breed averages; individuals or strains (bloodlines) often vary from average.
**For comparison, a small chicken egg weighs 1.5 ounces, a large egg weighs 2 ounces, and a jumbo egg weighs 2.5 ounces.

Egg Laying Rates and Egg Weights by Breed*		
Golden 300/Gold Star	200–290	2.85
Magpie	220–290	2.85
Mallard	60–120	2.45
Muscovy	50–125	2.8
Pekin	100–180	3.35
Rouen	125–160	3.05
Rouen, exhibition type	35–125	3.05
Runner	100–180	2.55
Saxony	110–190	3.0
Swedish	100–150	3.15
Welsh Harlequin	100–150	2.8
White Layer/White Star	200–290	2.85

*Overall breed averages; individuals or strains (bloodlines) often vary from average.
**For comparison, a small chicken egg weighs 1.5 ounces, a large egg weighs 2 ounces, and a jumbo egg weighs 2.5 ounces.

Egg Size

When a duck first starts laying, her eggs will be small (and some may be yolkless) while her system gets up to speed. The eggs of mature ducks range in size from those comparable to a small chicken egg to those that are twice the size of a large chicken egg. The average duck egg is equivalent to 1½ large chicken eggs.

The size of the eggs of an individual duck depends in part on her breed and strain, but mostly on the size of the duck herself. Even within a single breed, the larger ducks usually lay larger eggs.

The duck's diet also influences the size of her eggs. A layer ration containing 16 to 20 percent protein encourages proper egg size. But even with a healthy diet, egg size may decrease in ducks that are crowded, lack adequate amounts of drinking water, or are suffering summer heat stress.

Egg Color

Duck eggs may have white, greenish, or bluish shells. East Indies may lay eggs with nearly black shells. Except for Muscovies, which lay only white eggs, you can't tell which duck will lay what color egg. However, an individual duck will consistently lay eggs with basically the same shell color. The accompanying table indicates the likelihood that ducks of each breed will lay eggs other than white.

Likelihood of Ducks Laying Blue-Green Eggs

BREED	COLOR CODE
Duclair	3
Mallard	3
Ancona	2
Aylesbury	2
Buff	2
Call	2
East Indie	2
Rouen	2
Runner	2
Appleyard	1
Campbell	1

1=least likely; **2**=somewhat likely; **3**=most likely

Likelihood of Ducks Laying Blue-Green Eggs	
Cayuga	1
Crested	1
Golden 300/Gold Star	1
Magpie	1
Pekin	1
Saxony	1
Swedish	1
Welsh Harlequin	1
White Layer/White Star	1
Muscovy	n/a

1=least likely; **2**=somewhat likely; **3**=most likely

How to Increase Egg Numbers

The average number of eggs laid by each duck breed is generally quoted as a range. The lower number is more likely

for ducks that live naturally, including spending a lot of time foraging. The higher number is more likely among mature ducks that are fed carefully formulated rations and kept in controlled housing with augmented light year-round.

To keep your ducks laying during the shorter days of late fall, winter, and early spring, you can use electric lights to augment natural daylight by adding light both in the morning and in the evening. Your goal is to consistently provide the amount of light equal to the longest day of the year in your area. (You can find that information with a quick search online.)

Choose bulbs in the warm spectrum. Indoors, use the equivalent of one 40-watt bulb per 150 square feet; outside the shelter, use the equivalent of one 100-watt outdoor-rated bulb per 400 square feet. *Do not* use shatter-resistant bulbs coated with Teflon (PTFE), which release deadly toxins. Barring electricity, you could use 12-volt bulbs designed for recreational vehicles, powered by a battery connected to a solar recharger.

Inexpensive reflectors from the hardware store may be used to direct the light appropriately. Bulbs should be hung about 6 feet off the ground to reduce scary shadows.

Adjust your lighting times seasonally as needed to maintain your optimum light hours per day. Even a minor reduction in light hours can throw off egg production.

To avoid having young ducks start laying early, and thus laying small eggs for a longer period, begin your lighting program only after your ducks have reached 20 weeks of age. Many backyard duck keepers, on the other hand, forgo

augmented lighting altogether, preferring to give their ducks a winter rest.

Feeding Layers

As the laying season approaches, ducks require a higher level of nutrition than is provided by a maintenance ration. About three weeks before you expect them to start laying, gradually switch to a layer ration that contains 16 to 20 percent protein.

In warmer weather, ducks need even more protein to keep eggs from getting smaller. If your farm store doesn't carry layer ration for ducks, layer ration formulated for chickens is fine.

For sound, thick eggshells, provide a calcium supplement continuously throughout the laying season. Ducks that have access to forage usually get plenty of calcium from the shells of bugs and snails they eat. Still, it's a good idea to provide them with a free-choice hopperful of crushed oyster shells, ground aragonite, or chipped limestone (not dolomitic limestone, which can be detrimental to egg production). You can find these products at most farm and feed stores.

DUCK TALE

Watch Out for Snakes

After we moved to our farm in Tennessee, I quickly became familiar with rat snakes thanks to our Khaki Campbells. One morning as I watched the ducks waddle out of their coop, I lifted the exterior lid to the nest boxes to gather their eggs. Paying more attention to the ducks than to the eggs, I reached into a nest and encountered a big black rat snake bulging with duck eggs. I let out a yelp, while the harmless snake barely blinked.

Since then I'm always careful to check each nest before sticking in my hand to collect eggs. Rat snakes, also called chicken snakes, are common throughout the United States and tend to hang out where eggs are plentiful.

Providing Nests

Most ducks prefer to lay on the coop floor. With clean bedding, you can get by quite well without providing nests. On the other hand, if you let out your ducks before they finish laying for the morning, having a few nests scattered around the yard will help keep their eggs clean and protect them from being cooked by sun, washed by rain, or frozen in cold weather.

As a rule of thumb, furnish one nest per three females (except for setting ducks, which need one nest per duck). But be prepared for your ducks to lay their eggs wherever they please —including in their pond or wading pool.

A nest may be in the shape of a box, an A-frame, or a large bucket or small barrel on its side and blocked to prevent rolling. Pet carriers make good nests. Most breeds prefer to lay eggs at ground level; Muscovies like to be 2 to 3 feet off the ground.

An appropriate nest size is 12 by 12 by 12 inches for a small duck, 15 by 15 by 15 inches for a large duck, and 18 by 18 by 18 inches for a Muscovy. The precise size is not critical, provided the nest is large enough to accommodate an abundance of soft nesting material (a thick layer of nesting material, such as shavings, dry leaves, or hay, will keep the eggs clean, reduce breakage, and prevent eggs from rolling out of the nest). A nest should also have these important features:

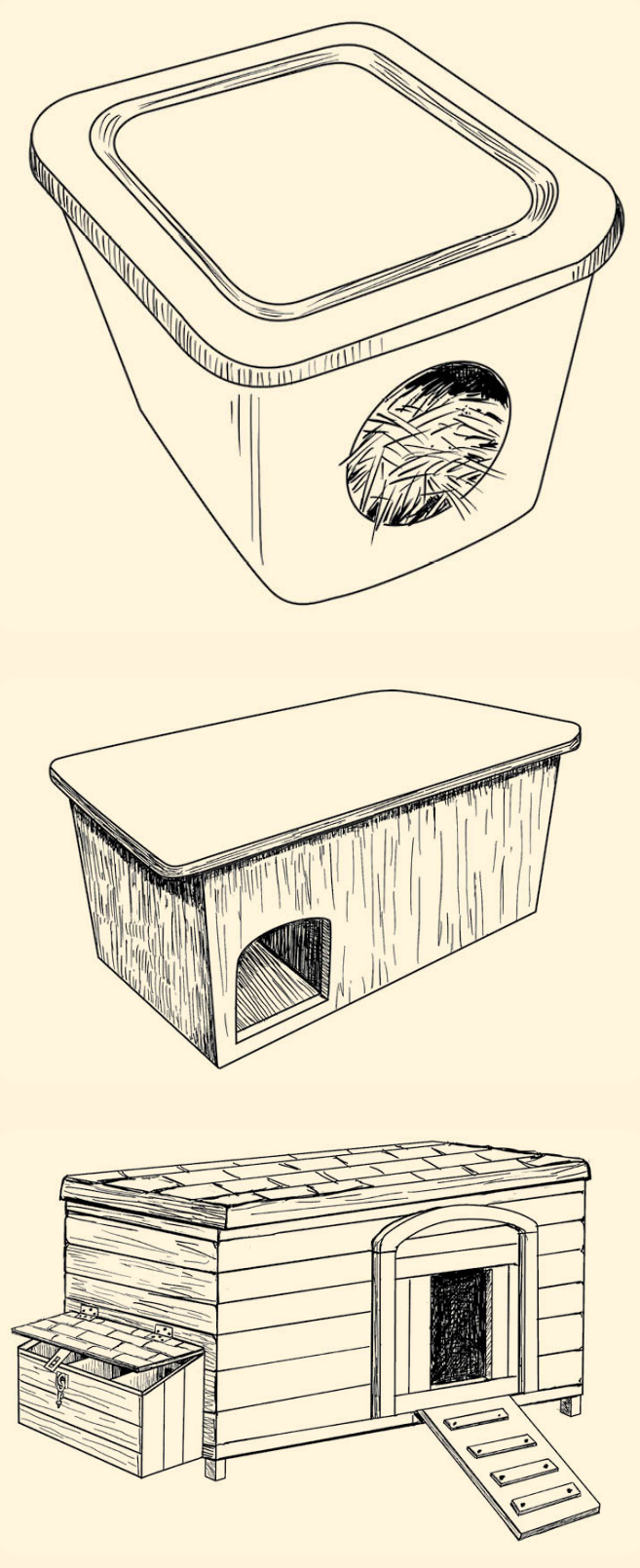
- Tall enough for a duck to enter and sit comfortably
- Wide enough for her to turn around, since ducks don’t like to back out
- Small enough to offer a feeling of protective seclusion

- Open at only one end, so the duck can keep an eye on who might be coming
- Separated physically or visually from the next nearest nest
- Situated where it is well protected from predators
- Located in a shaded area, or on the cooler west or north side of the coop

As laying season approaches, ducks will investigate available nesting sites. If they see an egg in a nest, they may consider it a safe place to lay and be inclined to deposit their own eggs there. So, to encourage use of the nests you provide, place in each nest an artificial egg such as the wooden ones found at hobby shops or the hollow plastic ones available just about anywhere around Easter. If you opt for hollow plastic, fill them with sand and glue the two halves together to give them enough weight to stay in the nests.

SUITABLE DUCK NESTS

Ducks will seek out places to nest where they feel protected from predators. A simple covered box with an opening will do, or you can provide a more elaborate structure with access for collecting eggs.



Cooking with Duck Eggs

Do duck eggs taste exactly like chicken eggs? Some people claim they can't tell the difference. Others say that, compared to chicken eggs, duck eggs have either a stronger flavor or a less strong flavor. How they taste to you depends on your individual taste for eggs as well as on the ducks' diet.

Duck eggs may be used in all the same ways as chicken eggs, with a few tweaks. For example, the firmer albumen of a duck egg takes slightly longer to whip. And an overcooked fried duck egg can take on a somewhat chewy texture. On the plus side, the higher fat and protein levels of duck eggs, compared to chicken eggs, make for lighter and richer pastries.

In baking, most recipes calling for eggs imply (or specify) large chicken eggs. To find out how your duck eggs compare, break a few, mix them up, and weigh them on a kitchen scale, then divide the weight by the number of eggs. If the average weight is close to 50 grams, use your duck eggs in recipes one-for-one as a substitute for chicken eggs. For duck eggs that are far off in weight, blend the yolks and whites together, then weigh out 50 grams for each egg the recipe calls for.

If you don't have a kitchen scale, use a measuring cup. The contents of one large chicken egg make up 3¼ tablespoons. For a recipe calling for just one or two eggs, ¼ cup per egg is close enough.

Nutritional Value

Many nutritional comparisons between duck eggs and chicken eggs are off base because they don't specify the sources of the eggs being compared. Nutritional value depends a lot on what the birds have been eating. If the chicken eggs came from confined chickens, for example, but the duck eggs came from a foraging flock, naturally the duck eggs will be nutritionally superior.

Egg Nutritional Value per Ounce

	DUCK EGG	CHICKEN EGG
Calories	52.8	40.9
from carbohydrates	1.4	0.9
from fats	35.4	25.6
from proteins	16.0	14.4
Cholesterol	253 mg	121 mg

Further, a larger duck egg is often compared to a smaller chicken egg, so of course the duck egg will have the greater nutritional value. Still, comparing an average duck egg and an average chicken egg, ounce for ounce, shows that duck eggs offer slightly more calories, fats, and cholesterol.

Vitamin and mineral contents also slightly differ. Chicken eggs contain vitamin D, duck eggs do not. On the other hand, a duck egg contains more iron than a chicken egg. Also, the types

of proteins differ, so a person who is allergic to chicken eggs may not be allergic to duck eggs, and vice versa.

Keeping Eggs Clean

Just before an egg is laid, it is coated with a fast-drying fluid called the bloom or cuticle. The bloom seals in moisture and seals out bacteria. If you wash an egg, you wash off the protective bloom.

A better option is to ensure that eggs remain clean until you collect them. Getting clean eggs requires clean housing, clean nesting areas, and uncrowded living space. Collecting the eggs soon after they are laid also helps. Muscovies, by the way, tend to dirty their eggs less than other ducks.

Most ducks lay in the early morning. If you keep your ducks confined in their clean coop until they've finished laying, then collect the eggs as soon as you let them out, you're more likely to have clean eggs. You'll also have an easier time finding the eggs.

You might start by letting the ducks out at 8:00 a.m. If some ducks then lay outside the coop, let them out a little later the next day, until you hit the time when all the ducks in your flock have finished laying for the morning.

Lightly soiled eggs may be brushed clean. A mildly soiled egg may be washed in water that is warmer than the egg, but it should then be used right away because it will not keep as well as an unwashed egg. Extremely soiled eggs should be discarded.

Storing Eggs

Researchers at the University of Nebraska determined that duck eggs stay fresh longer in storage than chicken eggs. Compared to a chicken egg, duck egg albumen doesn't thin as readily, the yolk membrane doesn't weaken as much, and the yolk doesn't deteriorate as quickly. That means when you crack a duck egg into a frying pan, it won't spread as much as a chicken egg that's been stored for the same length of time.

Stored eggs rarely go "bad," as in rot. But if you're worried, you can candle them the same way you would candle eggs for incubation (see here). You should clearly see a yolk surrounded by translucent albumen. Of course, the ultimate test is when you crack the egg open. You know what a fresh egg looks and smells like, so you can readily tell if one isn't right.

Clean duck eggs in a carton will keep well in a properly cold fridge for up to four months, making it convenient to store extra eggs during times of plenty for use during times of dearth.

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HOW DO I HATCH DUCK EGGS?

If you're interested in hatching some of your fertilized duck eggs into ducklings, you have a few options. You could let one of your ducks set, assuming you have one that's willing. You could let a chicken do the setting, assuming you have a broody hen. Or you could hatch the eggs in an incubator.

Using a Broody Duck

Ducks typically don't like to nest close to one another. To encourage your ducks to set, provide one sheltered nest per female, scattered around the yard. Your ducks will investigate them and make a choice.

Any nest, as described in Chapter 8, would be suitable with a couple of inches of clean, dry soil tamped into the bottom. Another possibility is a small doghouse without a floor. A nest against the ground is better for hatching than one with a wooden or plastic floor, since soil helps retain the moisture necessary for a successful hatch.

BREEDER DUCKS

Ducks are at their prime age for breeding from 1 to 3 years of age. A drake is fertile by the age of 6 months and peaks after the third season.

A duck's overall reproductive life lasts for 6 to 8 years. A duck will lay eggs whether or not a drake is present, but unfertilized eggs won't hatch.

Setting ducks like to be protected from the back and sides, so they can face a single entrance to keep an eye out for potential intruders. They also like to brood in darkness and seclusion. Loosely piling brush and tree prunings in front of the doorway

will both darken the nest and camouflage the entry. Where the weather is sunny and hot, place the shelter under a tree or pile brush on top (or both) to keep things cooler inside.

ABOVE: *Provided with shavings, hay, or other materials, a duck will create a hollow nest to brood her eggs.*

Nesting material gives a duck something soft to sit on and to hollow into a bowl for the eggs to nestle in, helping prevent breakage and retain warmth. When a hen leaves the nest to grab a bite to eat, she may cover her eggs with some of the nesting material to keep them warm and make them less visible. If no nesting material is provided, a dedicated hen will gather whatever she can find.

Given the opportunity, the hen will shape her own nest out of clean, dry wood shavings (other than cedar), dry leaves,

straw, or hay, always augmented with feathers pulled from her breast.

ABOVE: *Muscovy ducks can raise two or even three broods in a year.*

Broody Behavior

During the brooding period, the duck will stay on the nest most of the time, leaving only occasionally to eat, drink, or swim. When a brooding duck returns from a swim and settles down on her nest, moisture from her feathers keeps her eggs from drying out. On her return she will reorganize the eggs by rolling them with her bill or paddling them with her feet.

Sometimes during this process an egg rolls out of the nest. A good broody duck will roll the egg back in with her bill, but a lazy mother will let it go. A hen that is sloppy with her eggs may eventually lose them one by one until none is left to hatch. To avoid this problem, add a sill at the front of the nest that's low enough for the duck to step over but high enough to keep eggs from rolling out.

A mallard-derived duck can cover about 14 eggs, and a Muscovy 20 or more. For a successful hatch, the eggs should lie in the nest side by side, with none on top of others. If a duck is trying to cover more eggs than she can comfortably hatch, remove any that aren't tucked under her. A mallard-derived duck will typically hatch one brood per year. A Muscovy may raise two or even three broods per year.

If all goes well, the ducklings will appear in approximately 28 days if they are of a mallard-derived breed, or 35 days if they are Muscovies. In early spring when the weather is still cold, or in rainy weather, confining the family to a shelter will help ensure survival of the ducklings.

The hatchlings will remain hidden under their mother for the first day or two before venturing out to explore the big world. After leaving the nest, they will stay close to their mother and periodically crowd around her for warmth. On cold or rainy days, she may open her wings like an umbrella to provide additional protection.

Where a pool is available for swimming, the mother duck will shepherd her ducklings out of the water when she feels they've had enough. Make sure the ducklings can easily exit the pool, as described in Chapter 5.

The Drake's Role

Mallard-derived breeds tend to form pairs during the breeding season. A duck will try to keep other ducks away from her drake, and the drake will run off other drakes. But while all this posturing is going on, actual mating occurs indiscriminately among and between the various pairs. Any time one drake mounts a duck, the others will join in. As a result, the duck could be seriously injured or even drowned.

So, although ducks may be kept in pairs, maintaining fewer drakes offers hens some relief from high-libido males. It also reduces the feed bill. For good fertility, the suggested mating ratios for a small flock of ducks with one drake are shown in the table at left. (For the record, the recommended number of ducks per drake is generally higher in a flock that's large enough to accommodate multiple drakes.)

Small-Flock Mating Ratios

BREED	HENS PER DRAKE
Bantam	2–4
Light weight breed	4–6
Medium weight breed	3–5
Heavy breed	3 or 4
Muscovy	5 or 6

Muscovies do not form similar allegiances to those of mallard-derived breeds. Rather, the two sexes lead separate lives throughout the year. Still, Muscovy drakes use their long, sharp claws and powerful wings in violent attacks on one another—reason enough to keep only one.

Muscovy drakes seem to have insatiable sex drives and don't discriminate between Muscovy ducks and others. Any offspring from the mating between a Muscovy and another breed will be a mule that normally would be incapable of reproduction.

DEALING WITH EXTRA DRAKES

Duck eggs hatch at the rate of approximately 50 percent males and 50 percent females, so when you hatch duck eggs, you need a plan for dealing with surplus males. Although it's tempting to think that anyone who lives in the country (or maintains an animal shelter) would welcome free drakes, that's usually not the case. By far the best plan for extra drakes is to harvest them for meat (see Chapter 10). The most inhumane thing that happens to surplus drakes is being turned loose in a local park or lake, where they have no idea how to fend for themselves.

Using a Broody Chicken

Although duck eggs take a week longer to hatch than chicken eggs, a chicken hen can successfully hatch duck eggs. A chicken can cover about 12 eggs of the same size she produces. To hatch duck eggs that are larger than her own, don't expect her to handle more than about 10. If the duck eggs are smaller than her own (such as those of a bantam duck), she might be able to cover as many as 18.

All the eggs must fit handily beneath her. If any stick out around the edge, chances are she'll eventually rotate them back under her and let some other eggs take a turn getting chilled, until they all fail to hatch.

Because duck eggs take longer to hatch than the 21 days required for chicken eggs (see the Incubation Period table), use a proven broody hen to hatch them. A hen that's brooding for the first time may not stick around long enough to finish the job.

All the eggs in a nest must hatch at approximately the same time so the ducklings can leave the nest together, under the protection of the mother hen. Therefore, once you are assured that the chicken is indeed broody, remove whatever eggs are in her nest and replace them with the number of duck eggs you wish to hatch.

Chickens typically mother ducklings as if they were their own. Some chickens become upset if their newly hatched babies waddle into water for a swim. Others, however, take it in stride, jumping right in and happily paddling around right along with the ducklings.

DUCK TALE

Combination Incubation

Even when your plan is to let your ducks hatch their own eggs, being aware of alternatives can come in handy. Following her three-week adventure (see here), Dippy the Mallard duck had taken up with an injured drake her keeper, Gene Morton, was caring for. When Dippy and Gene were asked to appear on TV, Dippy was brooding a clutch of eggs that were near hatching time. Gene asked his high school chum Dave to keep Dippy's eggs warm while he and Dippy were away.

Dave tucked the eggs under an electric heating pad and watched over them until Dippy returned to her nest. A few days later, thanks to Dave and his warm heating pad, all of Dippy's eggs hatched, and she successfully raised her brood in Gene's backyard.

Using an Incubator

Some incubator manufacturers mention only chicken eggs and may not specify how many duck eggs their units will hold. To estimate the equivalent number of waterfowl eggs, figure 75 percent of the chicken egg capacity for mallard-derived duck eggs and 60 percent for Muscovy eggs. A 48-egg incubator, for example, theoretically could handle 36 duck eggs or 29 Muscovy eggs. A small incubator designed for only a few chicken eggs may not be big enough to handle duck eggs at all.

Incubation Temperature

A good-quality incubator has a fan to circulate warm air around the eggs. Such an incubator is called a forced-air incubator. The incubation temperature in a forced-air incubator should be around 99.5°F (37.5°C). An incubator without a fan, called a still-air incubator, should be operated at a temperature of about 102°F (39°C).

During the last 2 days of incubation, the about-to-hatch ducklings will increase the temperature inside the incubator. To compensate for the heat they generate, decrease the incubator's temperature by 1 to 1.5°F (0.5 to 1°C). For specific details, consult your incubator's operation manual.

Egg Turning

Throughout incubation, the blunt end of each egg must always remain higher than the pointed end. The eggs must be periodically turned until three days before they are scheduled

to hatch, which is approximately day 25 for most ducks, and day 31 for Muscovies.

ABOVE: *Make sure your incubator is large enough to hold the number of duck eggs you wish to hatch.*

In an incubator with a turning device, the eggs are automatically turned every hour. In an incubator without a turning device, you must turn the eggs by hand. Manual turning every hour isn't practical, but turning the eggs three or five times a day is nearly as effective. Turning them an odd number of times during the day ensures the eggs aren't always

lying on the same side during the long overnight hours of nonturning.

For manual turning, to make sure each egg is turned halfway around, and all eggs are turned each time, place an X on one side of each egg and an O on the opposite side. On one turning face all the Xs upward; on the next turning face the Os upward.

Incubation Period

BREED	DAYS	STOP TURNING
Bantam, Campbell	26–28	day 25
Most ducks	28–29	day 25
Muscovy	33–35	day 31

Providing Humidity

Incubation success is related to the rate at which eggs dehydrate, which in turn is related to the amount of moisture in the air inside the incubator. Under normal conditions, the humidity level should be about 55 percent for unwashed duck eggs, or 65 percent if the eggs were washed prior to incubation. During the last three days, when the eggs are no longer being turned, humidity should be increased to about 75 percent.

To improve the hatch rate, spray duck eggs with lukewarm (100ºF/38ºC) water from days 4 through 25 (day 31 for Muscovy eggs). At the end of the turning period, on day 25 (or

31), spray them once more. From then on, leave the incubator closed until most of the ducklings have hatched.

Avoid Explosions

Duck eggs, more than any other poultry eggs, are inclined to explode during incubation, creating a smelly mess that's tough to clean up. To avoid explosions, begin by not incubating dirty eggs. The best eggs to incubate are those that are clean when collected from the nest. Washing a dirty egg reduces its ability to hatch but is better than having the egg explode. Wash each dirty egg individually, using clean water that's 10 to 25ºF (6 to 14ºC) warmer than the egg.

ABOVE: *The web of blood vessels and the dark embryo indicate a healthy egg.*

A duck egg that's going to explode usually does so about 16 days into incubation. Candling eggs after one week of incubation is another way to avoid explosions. To candle, hold each egg up to a bright light coming through an opening smaller than the diameter of the egg. I use a small LED flashlight. Candling reveals one of these four things:

- A vague, cloudy shadow indicating the embryo died after several hours of incubation. Discard this egg.
- A thin ring within the egg or around the short circumference, indicating the developing embryo died. Discard this egg.
- Nothing (clear), indicating either the egg is not fertile or has some other defect that renders it unable to develop. Discard this egg. (To learn what a clear egg looks like, candle a few fresh duck eggs that haven't been incubated.)
- A web of blood vessels surrounding a dark spot, indicating the embryo is on its way to becoming a little duckling.

Hatch Rate

For various reasons, not all of a duck's eggs will be fertile. The average fertility rate for most breeds is about 85 percent. The fertility rate for Mallards, Muscovies, and Pekins should be closer to 90 percent.

Further, not all fertile eggs will necessarily hatch. Even a duck doesn't always hatch all her fertile eggs. For artificial incubation in a well-designed unit that is properly run, the average hatch rate for fertile duck eggs is 70 to 75 percent.

This means that if you incubate 20 eggs, you might expect 17 (80 percent) to be fertile. Of those 17, you can expect about 12 (70 percent) to hatch. Anything more than 75 percent of fertile duck eggs hatched is considered to be a really good rate.

MAIL-ORDER HATCHING EGGS

Eggs that are shipped can encounter any number of problems that will affect their hatchability. So don't expect the same hatch percentage from them as you would get from fresher eggs that weren't subjected to the conditions of transport.

When shipped eggs arrive, improve your percentage rate by giving them time to settle before placing them in your incubator or under a hen. Settling has two purposes: to give the eggs a rest after being jostled during transport and to give them time to adjust to a uniform temperature before incubation starts.

Let the eggs settle for at least half a day in an environment that is ideal for hatching-egg storage: away from sunlight in a cool, relatively dry place (such as a back room closet or a food storage pantry) with a temperature between 50 and 60°F (10 and 16°C) and humidity between 70 and 80 percent.

Mail-order or not, hatching eggs rarely come with any kind of guarantee. Once the eggs are out of the seller's

hands, that person has no control over what happens to them. Purchasing eggs for hatching is always a gamble.

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HOW DO I MANAGE DUCKS FOR MEAT?

Any duck may be raised for meat, and it's not uncommon for small-flock owners of any breed to harvest their surplus drakes. But for strictly meat purposes, some breeds and hybrids have been developed to grow faster and larger while consuming less feed. For egg production, however, these

larger, meatier breeds lay less well than the midsize dual-purpose (egg and meat) breeds or the smaller breeds kept mainly for eggs or as ornamentals.

Meat Ducks

The two most common breeds kept primarily for meat are Pekin and Muscovy, although some top chefs consider other breeds—especially Aylesbury and Duclair—to have superior flavor. Nevertheless, if you purchase a duck at the grocery store or butcher shop, it will most likely be a Pekin.

As a white-feathered breed, the Pekin appears cleaner when plucked, because its white pinfeathers don't show as much as the pinfeathers of ducks with darker plumage. On the other hand, breeds with more colorful plumage are less attractive to predators, making them a better choice for free-range meat production.

ABOVE: *Pekin and Muscovy are two breeds commonly raised for their meat.*

Pekins are the fastest-growing duck breed. Their meat tends to be lower in fat and higher in protein than that of other mallard-derived breeds. They come in two sizes: standard and jumbo. Both are typically butchered at about 6 weeks of age, although they'll produce more meat at 12 weeks. Depending on the age of slaughter, a standard Pekin will dress to about 5 pounds, and a jumbo to about 6 pounds.

Muscovy meat is much lower in fat than that of any other duck, including Pekin. Muscovies also produce proportionally more breast meat than Pekins and have a higher ratio of meat to bone. Muscovy meat is deep red, with a flavor that's often compared to beef and a tenderness compared to veal. Muscovies are typically butchered at 10 to 12 weeks of age. At 16 weeks they'll produce more meat, but past that age the drake's meat becomes musky. Females dress to about 4 pounds, and drakes to about 7 1/2 pounds.

DUCK TALE

Duck Dinner

When I think about the taste of duck, I think of a Mallard. It was the first duck I ever ate, and for many years the only duck I raised for meat. Being a small duck, a Mallard is the ideal size for dinner for two (or for one really hungry diner). Eventually I tried other breeds, including Muscovy—delicious, but not the same as "duck."

Most recently I raised some Pekins alongside Rouens for a taste test. Neither my husband nor I could honestly say we found any significant difference between the two (other than feather color). Both were tasty, but neither was quite as flavorful as a homegrown free-range Mallard.

Hybrids for Meat

Crossing a Muscovy drake with any large-bodied mallard-derived duck, such as Pekin or Rouen, will produce fast-growing meat birds in which the males and females are about the same size at harvest age. The commercially popular Mulard

(also spelled Moulard) is a cross between a Muscovy drake and a Pekin duck. It has the large breast of a Muscovy and more fat than a Muscovy, but less fat than a Pekin. Its typical dressed weight is 4 to 7 pounds. Similar to mules (a cross between a male donkey and a female horse), Mulards rarely reproduce.

If you're wondering whether crossing a mallard-derived drake with a Muscovy duck would produce similar results, forget it. In the resulting hybrid ducks, males and females won't grow to the same size at the same age. Plus, unlike a Mulard duck with its small but unhatchable eggs, these ducks won't lay at all.

Feathering Means Butchering Time

Weight gain is only one important factor in determining when a duck is ready for butchering. The other is the stage of molt. All those feathers that allow ducks to swim comfortably in cold water take a long time to remove, and plucking is considerably more difficult if some of those feathers are only partially grown. Plucking is less time-consuming, and the result is more appealing, when the duck is in full feather.

Soon after a duck acquires its first full set of feathers, it begins molting into adult plumage and won't be back in full feather for another two months or so. You'll know the optimum time to pluck a duck has passed when the feathers around its neck start falling out. From then on, the bird's

growth rate slows and the feed conversion rate goes up from the typical rate for the first eight weeks of 1 pound of weight gain for every 3 pounds of feed. After this point, feeding meat ducks becomes more costly, the meat becomes tougher, and the meat of Muscovy males begins taking on an unpleasant musky flavor.

A duck is in full feather and ready for slaughter when:

- Its flight feathers have grown to their full length and reach the tail.
- Its plumage is bright and hard looking and feels smooth when stroked.
- You see no pinfeathers when you ruffle the feathers against the grain.
- The duck has no downy patches along the breastbone or around the vent.

When all these signs are right, the duck is ready. If you are doing your own butchering for the first time, have an experienced person guide you, or refer to any of the many online videos and tutorials.

If you are not willing or able to kill your own ducks, determine before you start raising the ducklings whether or not someone in your area is available to do it for you. You might, for example, find a custom slaughterhouse that handles ducks. Or a fellow backyard duck keeper or a hunter might be willing to kill and pluck your ducks for a fee or a share of the meat.

Storing the Meat

Freshly butchered duck must be aged in the refrigerator for 12 to 24 hours before being cooked or frozen; otherwise, it will be tough. If you will not be serving the duck within the next three days, freeze it after the aging period until you're ready to cook it. To avoid freezer burn, use freezer storage bags. Most ducks will fit in the 1-gallon size. A Muscovy female should fit in the 2-gallon size. A Muscovy male should fit in the 5-gallon size.

Remove as much air from the bag as you can by pressing it out with your hands or by using a homesteader's vacuum device designed for that purpose. Properly sealed and stored at a temperature of 0°F (–18°C) or below, duck meat may be kept frozen for six months with no loss of quality. To thaw a frozen duck before roasting, refrigerate it for 2 hours per pound.

A whole duck takes up a lot of freezer space. Unless you intend to stuff and roast the bird, you can save space by

halving or quartering it, or by filleting the breasts and cutting up the rest.

Muscovy breast makes an exceptionally fine cut that is the most like red meat of any waterfowl. After removing the fillets, you might package the hindquarters for roasting or barbecuing and simmer the rest for soup. Another great use for Muscovy meat is making sausage, using any recipe calling for pork.

Cooking Methods

The most appropriate method of cooking a duck depends on its tenderness, which in turn depends on its age. Fast dry-heat methods, such as roasting, broiling, frying, and barbecuing, are suitable for young, tender ducks. Slow moist-heat cooking methods, such as sous vide, pressure cooking, or making a fricassee, soup, or stew, are required to tenderize older, tougher birds.

Roasted to Perfection

Contrary to common misconception, a properly prepared homegrown duck should not be greasy. Although ducks have a lot of fat, the meat itself is pretty lean. All the fat is either just under the skin or near one of the two openings (the neck and the vent), where it easily may be pulled away by hand before the bird is roasted.

Proper roasting begins by putting the meat on a rack to keep it out of the pan drippings while the duck cooks. Remove any

fat from the cavity and neck openings, and stuff the duck or rub salt inside. Rub the skin with a fresh lemon, then sprinkle with salt.

Pierce the skin all over with a meat fork, knife tip, or skewer, taking care not to pierce into the meat. Your goal in piercing is to give the fat a way out through the skin as it melts during roasting. This melted fat will baste the bird as it drips off, so no other basting is required. Do not cover the duck with foil during roasting, as you would a turkey.

Slow roasting keeps the meat moist. Roast a whole duck at 250°F (120°C) for 3 hours with the breast side down, then for another 45 minutes with the breast up. Then increase the temperature to 400°F (205°C) for another 15 minutes to crisp the skin.

Since not all ducks are the same size and not all ovens work the same way, the first time around keep an eye on things to avoid overcooking your duck, which makes it tough and stringy. Once you settle on the correct time range for ducks of the size you raise, you can roast by the clock in the future.

When the meat is done, it should be just cooked through and still juicy. You can tell it's done when the leg joints move freely, a knife inserted into a joint releases juices that flow pink but not bloody, and the meat itself is just barely pinkish. The USDA recommends cooking duck to a minimum internal temperature of 165°F (75°C).

For nice moist meat, lock in the juices by letting the duck stand at room temperature for 10 to 15 minutes before carving it. During this time, residual heat will cook away any remaining pink. Duck does not have light and dark meat like a

chicken or turkey. Rather, it is all succulent dark meat and is often treated more like red meat than like other poultry.

Rendered Duck Fat

Rendered duck fat is awesome when used for baking and frying. It may be used like butter, for instance heated and tossed with popcorn or spread on crusty bread to be toasted in the oven. To up the flavor of pastries and other baked goods, substitute duck fat for half the butter. Duck fat makes especially delicious potatoes, whether French fried, pan fried, or oven roasted. It also may be used in many of the same ways as olive oil, for instance for stir-frying or sautéing mushrooms.

Duck fat rendered during roasting often includes charred bits that adversely influence the flavor. For a cleaner flavor, the easiest way to render fat is in a slow cooker. While butchering a duck, save all trimmed-away skin and fat. After rinsing them, put them in a slow cooker set on low. The fat melts as it heats, until all that's left is liquid gold with bits of crisp skin. Let it cool just slightly, then pour it through a coffee filter into a canning jar. Save the crisp bits left in the coffee filter to sprinkle on salads, sautéed greens, or casseroles.

ABOVE: *While butchering a duck, save all trimmed-away skin and fat to render.*

11

CAN I KEEP DUCKS AND CHICKENS TOGETHER?

Since ducks became popular following the latest round of chicken mania, people often ask whether ducks and chickens

can be kept together. A lot of people who consider getting ducks for the first time already have chickens. Others acquire ducks first and then wonder about the wisdom of also getting chickens. So, can ducks and chickens coexist? The answer is yes and no.

Differences between Ducks and Chickens

First let's look at some of the major differences between ducks and chickens and what they need.

Housing needs. A duck coop need not be as exacting as a chicken coop and therefore can cost considerably less to build or buy. With the exception of Muscovies, ducks don't roost for the night and therefore don't require perches. Ducks (again, except Muscovies) lay eggs on the ground, so they don't require elevated nests. Ducks have a slightly higher normal body temperature than chickens (107.8°F/42.1°C versus 107.1°F/41.7°C). That means they suffer a little less in warm weather and are less sensitive to cold weather and therefore don't require winter-fortified housing.

Yard requirements. Ducks, unlike chickens, won't quickly turn their yard into hardpan and won't dig ankle-wrenching dust-bathing bowls. On the other hand, given the opportunity, ducks will create a muddy mess around their drinking water station

and/or wading pool. And, if the duck yard is too small for the number of ducks, their copious quantity of nitrogen-rich droppings will eventually kill the vegetation.

Confinement. Ducks are easier to confine than chickens. For instance, if you want to confine them to a portion of your garden, all you need for most duck breeds is a foot-tall fence or other barrier of similar height. Chickens would have no trouble getting over such a low obstacle. They also have no trouble hopping into a foot-high raised bed that would defy most ducks. Chickens jump easily; ducks not so well.

Poop production. Like chickens, ducks don't pee but combine their urine output with poop as whitish urates. However, the average duck poops about twice as much per day as the average chicken. And a duck's droppings are more soupy than chicken droppings.

Brooder needs. With the exception of delicate bantams, ducklings are much hardier than chicks and less susceptible to chilling. They therefore are much less likely to die in the brooder. They also grow faster, so they need much less time in the brooder than chicks.

Sleep habits. Unlike chickens, ducks don't sleep all night. Rather, they take catnaps at night, just as they do during the day. Unlike chickens, ducks can see in the dark, and if not closed up in their coop they will wander in and out all night long.

Health issues. Ducks are much less susceptible to disease than chickens. While chickens are subject to any number of diseases (which led me to write *The Chicken Health Handbook*), ducks rarely get sick. Ducks, especially those with access to sufficient water for bathing, are far less likely than chickens to suffer from internal and external parasites—mites, lice, and worms.

Predators. Ducks are more susceptible to predation than chickens. They can't run as fast and they tend to stick together where chickens will scatter, making ducks easier for a predator to catch.

Molting patterns. Ducks, like chickens, molt annually in the fall. After this molt, mallard-derived drakes take on the same plumage pattern as the hens. In early spring the drakes go through a second, partial, molt to resume their brighter colors.

ABOVE: *Ducks and chickens can share living space if you take into account their different needs and behaviors.*

Egg production. Duck hens are productive two to three times longer than chicken hens. Where a chicken hen's egg production markedly declines after the second year, duck hens lay well into their fourth year and sometimes beyond. On the other hand, some duck breeds lay only seasonally, rather than year-round.

Meat production. Duck and chicken are both technically classified as white meat, although duck meat is darker because it is higher in iron and the red protein myoglobin. For practical purposes, therefore, duck meat is treated as red meat.

Behavioral Differences

Swimming ability. If the duck pool is shallow, chickens might stand in the water to cool off on a hot day. But chickens don't have waterproof plumage, like ducks do, and they don't have webbed feet for mobility in water. Although chickens can enjoy taking an occasional swim under supervision, an unsupervised chicken that accidentally finds itself in deep water can get waterlogged and drown. Well, under certain circumstances a duck, too, can get waterlogged and drown.

Friendliness. The calmer duck breeds, especially females, tend to be a bit friendlier than most chicken breeds. Chickens spend a lot of time enforcing the pecking order, something ducks don't seem to care much about. While chickens can make good pets, ducks tend to be less cautious and more curious and

therefore attach to humans more quickly. Because ducks are inclined to follow the leader, they are easier to herd. Herding chickens is a lot like herding cats.

Cannibalism. Ducks are not cannibalistic, like chickens can be. They don't peck at each other (although they do occasionally fight), and they don't eat their own eggs.

DUCK TALE

Duck Cannibals, Not!

A neighbor who had long kept chickens decided to try raising some ducks. After about a week he told me his young ducks were eating each other. I told him ducks don't do that and suggested a weasel or mink was periodically visiting his duck pen. He knew I was wrong, he said, because the pen was tight; the only explanation for a missing duck had to be that the others ate it. He never found any skeletal remains, yet the ducks continued to disappear one by one.

Exasperated, I told him he'd find out I was right about a predator getting into his duck pen when he lost the last duck, which obviously couldn't eat itself. And that's exactly what happened. Eventually the neighbor spotted a weasel in his duck pen, looking for yet another duck after having eaten them all.

Although cannibalism among chickens might be mistaken for the work of a predator, missing ducks should not be mistaken for cannibalism.

Myths about Ducks and Chickens

Ducks are quieter than chickens. This is not entirely true. With the exception of Muscovies, which are really quiet, or perhaps a flock composed entirely of mallard-derived drakes, ducks are noisy. It's as if each flock appoints a spokesduck to quack loudly, no matter the time of day or night. Get rid of the spokesduck and another takes her place. Call ducks are the worst offenders in this regard. A quacking duck outside your bedroom window is no less annoying than a crowing rooster.

Ducks are less destructive in the garden. Ducks don't create dust-bath holes and they don't scratch up plants like chickens do. But ducks do pull up tender plants by the roots, and they trample plants with their flat feet. Ducks also dig in the dirt with their bills, especially after the garden has been watered or rained on. But, as with gardening with chickens, gardening with ducks can be successful given careful management.

Duck droppings aren't as hot as chicken droppings. Look at five different sources and you'll find five different numbers for duck and chicken poop N-P-K (the ratio of nitrogen to phosphorus to potassium). Depending on where you look, the two can be nearly the same or vastly different. That's partly because N-P-K values vary with such things as the birds' health and diet, and also with the age of the poop and how it's stored. Ducks poop a lot in their swim water, which dilutes the droppings enough that they can be used directly on plants

without causing nitrogen burn. You can get the same benefit from chicken droppings by combining them with water—one part droppings to about four parts water.

Sharing a Brooder

Many people have successfully brooded ducklings together with chicks, especially in small numbers. But brooding them together is generally not a good idea, as it more often than not leads to disaster.

A big issue is water. For one thing, ducklings use more water than chicks. They don't just drink all that water, they also play in it. While ducklings don't chill as readily as chicks, the wet conditions they create in the brooder can cause illness, or even death, in chicks. Ducklings eat and drink at the same time, sludging up the drinker with feed and creating another unhealthful situation for chicks.

Duckling feed is fortified with niacin. While a little extra niacin won't harm chicks, it's better to feed them rations that are properly balanced for each species.

Ducklings grow far faster than chicks. Before long the ducklings will be big enough to trample the chicks. They'll soon have to be separated anyway, so why not start out that way?

DUCK-CHICKEN SEX

Occasionally you hear of a drake mating a chicken hen, or a rooster mating a duck hen. Interbreeding is most likely to occur where the duck flock has too many drakes or a single drake has too few ducks to mate. Conversely, interbreeding can occur where the chicken flock has too many roosters or a single rooster has too few hens to mate. A typical ratio for ducks is 1 drake per 6 hens, with a minimum of 4. A typical ratio for chickens is 1 rooster per 12 hens, with a minimum of 6. Crowded conditions, where females can't readily get away and hide, is another invitation to interbreed.

Drakes engage in forced copulation—in other words, rape. To make things worse, they have a rather long corkscrew penis that emerges from the cloaca during sex. A rooster (like most other male birds) doesn't have a penis, so chicken hens are not physically equipped for penis sex and can be seriously injured or even killed by it. Further, ducks like to have sex in water, and a drake may chase or drag a hen into the pond, where she may drown. Not incidentally, a duck hen victim of gang rape by drakes can also drown.

Since a rooster doesn't have a penis, sex involves joining his cloaca to the hen's cloaca in what's known as the cloacal kiss. Therefore, a rooster mating a duck hen does much less harm than the other way around.

After the spring mating season, a drake's penis temporarily regresses and he loses much of his interest in sex. A drake that chases after chickens should be either

separated during the mating season or entirely removed from the flock. If the situation involves overcrowding, that issue needs to be resolved as well.

As to whether an egg resulting from interbreeding can hatch, the jury is out. Infrequent accounts report on the existence of a "chuck" or "ducken," but to date none has been verified. If such a hybrid should exist, it would likely be sterile.

Different Housing Requirements

Unlike chickens, ducks don't sleep through the night, and their restlessness can disturb chickens to the point that they get too little sleep and become irritable. Also, duck poop is moister than chicken poop, making the coop bedding unhealthful for chickens. And if the chickens have a drinker inside their coop, ducks will make the bedding an even bigger mess. Ducks should therefore have their own housing in a shared yard, or at least separate "rooms" within the same building.

Once ducks are trained to go into their own coop at night (see Chapter 5), they learn to go in on their own. They may occasionally be tempted to wander into the chicken house, which can be discouraged by providing the chickens with an

elevated entry—accessible by hopping up or walking up a steep ramp—that is difficult for ducks to navigate.

To maintain health and harmony in the yard, ducks should be encouraged to congregate away from where the chickens hang out. Ducks can easily be attracted away by placing their watering station and pool away from the chickens' preferred spots.

The ducks' nighttime activities can keep sleeping chickens from getting enough rest.

Separate Food and Water Stations

Since chickens don't appreciate sludgy water, they and the ducks should have separate waterers. A nipple drinker or an elevated drinker with access via perches will deter the ducks from the chickens' water.

Mature ducks and chickens eat the same feed and enjoy the same treats. Both relish mealworms, tender leafy greens, and chopped juicy fruits and vegetables. To keep the chickens from gobbling down the ducks' share of treats, put the ducks' treats in their water, where they can dunk for them.

Even though ducks and chickens eat the same feed, each should have their own feeder. Chickens eat and drink at separate times, while ducks eat and drink at the same time, making a wet mess of the feed. Chickens may wander over to the duck feeder, and ducks may occasionally visit the chicken feeder. But just as likely, each may chase the other away. A duck that gets pecked by a chicken learns fast.

Provide Perches

In a too-crowded environment, especially with too little to eat or too few feeders, ducks and chickens may fight. Or, more likely, drakes and roosters may fight, which tends to occur most where either the drake or the rooster also has too few hens. Although most times chickens will be the aggressors, ducks do sometimes attack chickens.

One way to keep the peace is to provide perches for the chickens to fly or hop up onto. Except for Muscovies, ducks won't use the perches, and they give the chickens an opportunity to get away from the ducks. Another solution is to put up a cross fence that separates the duck yard from the chicken yard.

In other words, the key to ducks and chickens successfully sharing a yard is to give both lots of space. Given enough space, each species will tend to hang out with its own flock.

12

HOW DO I GET STARTED SHOWING DUCKS?

Before you begin showing your ducks, acquire a current copy of the American Poultry Association's *American Standard of Perfection*. If you're going to show bantam ducks, you also need

a copy of the American Bantam Association's *Bantam Standard.* Although both books focus on chickens, they include details on which duck breeds are acceptable for show, along with qualifying weights, shapes, and colors.

How to Prepare for Show

How well your ducks place in an exhibition depends on their physical condition, their disposition, how closely they conform to the standard description for their breed and variety, how they compare with other birds in the same class at the show, and the adeptness of the judge who reviews the class. How well you do as an exhibitor—and how much enjoyment you get out of it—depends on how well prepared you are for the event.

In preparation for showing your own ducks, a good idea is to visit a few shows and become familiar with the procedures. Reviewing winners in the class your ducks qualify for will put you in a better position to choose potential winners from your own flock. And by making friends with some of the people who regularly exhibit, you can pick up important tips on selecting and preparing your ducks for show.

Premium List

A good learning tool is to review the premium list for each show you plan to visit. Most shows now post this information online. Search for the name (or location) of the show plus the words "premium list."

The premium list includes the set of rules governing the show and should indicate which breed *Standard* (American Poultry Association or American Bantam Association) will be used, as the two don't always agree. When you're ready to show your own ducks, you will definitely need a copy of the premium list to determine where your ducks fit in at that specific show.

For each duck breed and variety, most shows have four classes: old female, old male, young female, young male. The word "old" refers to ducks 1 year of age or older, but some shows define them as having hatched before January 1st of the year of the show. The word "young" refers to ducks that are younger than 1 year of age, although some shows define them as having hatched during the calendar year the show is held.

Even among the standard breeds, not all ducks are eligible for all shows. Some shows allow only large breeds or only bantams. Others allow only certain breeds or varieties—due perhaps to space limitations or to the specific interests of the show's sponsors. Other information you'll find in the premium list includes:

- The show's time, date, and location
- Fees and deadlines for entry forms
- Health requirements, including blood tests
- The time and date when birds must be brought (cooped in) and removed (cooped out)
- Acceptable methods for identifying individual ducks
- Prizes or premiums being offered

The value of the prizes often determines the amount of competition in a class. Competition is typically stiffer at a sanctioned meet, at which prizes are offered by a specialty club for its members. To be eligible for such prizes, you must be a member of the group.

Joining the specialty club for your breed is a good idea, anyway. By reading the organization's newsletter, attending meetings, and chatting with other members, you will learn about issues that are peculiar to your breed.

SHOW ABBREVIATIONS

- **WF.** Waterfowl (ducks and geese)
- **OF.** Old female
- **OM.** Old male
- **YF.** Young female
- **YM.** Young male
- **BB** or **BoB.** Best of breed
- **BoSB.** Best opposite sex of breed
- **RB** or **RoB.** Reserve of breed (second place)
- **BV** or **BoV.** Best of variety
- **RV** or **RoV.** Reserve of variety (second place)
- **Ch.** Champion
- **Res.** Reserve (runner-up)

Choosing a Show

Shows range in size and scope from small affairs sponsored by a local club to national events that attract thousands of exhibitors. County fairs and state fairs often have an open-class division for the general public and separate divisions for 4-H and FFA (Future Farmers of America) members. Some shows have both a youth division for exhibitors who are 18 years old or younger and an open class for exhibitors of any age.

Youth classes might include showmanship, which judges the exhibitors themselves on their knowledge and appearance,

and on the conduct of their ducks. The youth division might also include a market class, which judges meat ducks (usually around 8 weeks old) on their weight and readiness for butchering. They might also include a conformation class, which judges ducks based on their condition and how closely they match the standard description for their breed.

ABOVE: *These junior exhibitors earned awards for the superior quality of their show entries.*

An open-class show is commonly based on conformation. When assessing conformation, judges take these two things into consideration:

- How each duck compares to the ideal (or standard) for its breed and variety
- How each duck compares in type, condition, and behavior to others in its class

In ranking the ducks in a class, most judges first compare two ducks, then compare the better of the two with a third duck, and so on until all the ducks in the class have been ranked. A good way for a novice exhibitor to become more observant of details is to practice doing the same: Rate each entry in the class according to its description in the *Standard*, then rank them against each other.

When the judging is over, compare your notes against the judge's. If your ranking is far off, ask a knowledgeable breeder to explain why. Some judges make themselves available to discuss their placements after they've finished judging.

While the class is being judged, note who in the crowd is especially attentive. Those folks likely have a bird in the class. A good way to get tips about your breed is to seek them out after the judging and ask, "What do you think of the duck that won?" If theirs is the winning duck, ask why it placed higher than the runner-up. The responses will help you learn to notice the finer details of your breed and variety.

How to Prepare Ducks for Show

Preparing a duck for show involves coop training and conditioning. The purpose of coop training is to get ducks used to being in a cage. The intent of coop training is to avoid stressing a duck that's not used to being caged, especially when strangers keep passing nearby and gawking at it. A nicely behaved, coop-trained duck has a better chance of placing well.

A typical duck cage, or coop, measures 24 by 24 inches and is 27 inches high. It should have a solid floor covered with shavings, and provisions for feed and water. The younger a duck is when you start coop training, the quicker it will adapt.

Conditioning involves the duck's appearance. Sunlight can cause feathers to lose their luster and colored plumage to fade, so ducks intended for show should have plenty of places to loll in the shade. The duck's feathers must be clean, which is usually not a problem where ducks are not crowded and have ample water to bathe in. Long toenails should be trimmed with clippers or nail scissors.

Feeding for Show

Feeding ducks for show involves providing nutrients that will enhance feather condition and plumage color, while preserving body condition. Most experienced exhibitors eventually develop a custom diet for their show birds, taking into consideration, among other things, the effects of certain feeds on plumage color and body condition.

Dave Holderread, lifelong duck keeper and author of *Storey's Guide to Raising Ducks*, recommends a show preparation diet that includes game bird flight conditioner and

cat kibbles. Flight conditioner is a high-protein, low-energy ration designed to promote muscle and feather development. Cat kibble is also high in protein and low in carbs. It contains animal protein, which contributes essential amino acids.

Some of Dave's recommended rations include wheat or other whole grains. Whenever you feed whole grains to ducks, also supply them with free-choice insoluble grit, as described in Chapter 4. Dave's show prep ration is fed both during the molt and during the six to eight weeks leading up to a show. To give you a start in developing your own show ration, refer to the chart below that gives Dave's recommendations per breed.

Last-Minute Touch-Up

When you arrive at the showroom, you will notice two kinds of exhibitors. One will be running around tossing ducks into their assigned coops. The other will be off in a corner or sitting in the back of a truck or van, calmly examining, grooming, and reassuring each duck before carefully placing it in its show coop. Keep an eye on those quiet ones—they're your stiffest competition. They're also your best teachers.

Take a tip from them and give your ducks a last-minute tune-up. Arrange feathers that got out of place during travel. Remove road dust and shine the feathers by rubbing clean bare hands or a piece of silk or wool over the plumage, working in the direction the feathers grow. Finish up by polishing the bill (with attention to nostrils), legs, and toes.

ABOVE: *A Crested duck waits calmly in its cage.*

It’s a Game of Skill

At a small local show, you might win with a bird you bought as a duckling from a feed store or hatchery. The bigger the show, the stiffer the competition, and the less likely prizes will be awarded to a duck that wasn’t bred for show. And, of course, ducks from a strain that’s bred for show will cost more than your average run-of-the-mill backyard duck.

Show Preparation Diet by Breed

Adapted from *Storey's Guide to Raising Ducks* by Dave Holderread

Appleyard	4 parts game bird flight conditioner, 1 part cat kibbles
Aylesbury	4 parts game bird flight conditioner, 2 parts oats, 2 parts white wheat, 2 parts fish-based cat kibbles
Buff, Crested, Swedish	4 parts game bird flight conditioner, 2 parts oats, 2 parts cat kibbles
Call, Mallard	6 parts game bird flight conditioner, 3 parts uncooked oatmeal, 1 part cat kibbles
Campbell, Magpie, Runner, Welsh Harlequin	Free-choice whole or pelleted oats, plus 7 parts game bird flight conditioner and 1 part cat kibbles fed in the morning and evening in an amount they will consume in 5 minutes
Cayuga	4 parts game bird flight conditioner, 2 parts oats, 2 parts cat kibbles, ½ part black-oil sunflower seeds
East Indie	6 parts game bird flight conditioner, 3 parts uncooked oatmeal or oat pellets, 1 part cat kibbles, ½ part black-oil sunflower seeds

Show Preparation Diet by Breed Adapted from *Storey's Guide to Raising Ducks* by Dave Holderread	
Muscovy	1 part oats, 1 part cat kibbles, plus plenty of succulent greens; several times a week also offer each duck 1 teaspoon canned cat food
Pekin	4 parts game bird flight conditioner, 3 parts yellow corn, 2 parts cat kibbles, 1 part rabbit or alfalfa pellets
Rouen	3 parts game bird flight conditioner, 1 part cat kibbles, 1 part oat pellets or whole heavy oats
Saxony	3 parts game bird flight conditioner, 1 part oat pellets or whole heavy oats, 1 part cat kibbles

As newcomers get more involved with exhibition, they are sometimes tempted to pay top prices for ready-to-show ducks purchased from frequent show winners. But not much skill is involved in winning prizes with birds someone else bred, trained, and groomed. Not only that, but experienced exhibitors can identify the person a duck was purchased from by the duck's appearance alone. They'll know that duck isn't truly "yours."

The real skill is in winning with ducks you selectively breed based on your interpretation of the *Standard.* The more ducklings you hatch, raise, and evaluate, the better chance you have of producing a champion.

However, keep in mind that ducks, like people, have good days and bad days. A duck on exhibit may carry itself differently from one day to the next because of changes in its physical condition or stress level. Accordingly, the same group of ducks may place in one order on one day and in a different order on another day.

So if your duck doesn't place high in its class, don't be hasty to dispose of it until you find out why it did poorly. The best duck in the world won't win if, for instance, it lacks maturity or is poorly trained, out of condition, or simply out of sorts.

DUCK TALE

Old-Timer Tips

When I got involved in exhibiting poultry, I made friends with an old-timer who told me a few things that are common knowledge among the cognoscenti but came as a surprise to me as a novice. One thing he suggested was the wisdom of learning each judge's specific preferences, which may deviate from the *Standard* description. By knowing who is going to judge a show you plan to enter, and knowing that person's biases relative to your breed, you have a better chance of entering ducks that will please that particular judge. Along those same lines, a bird that places poorly under one judge may do much better under a different judge.

Another tip my old-timer friend offered is that your best show birds are not necessarily your best breeders. You might, for example, breed a male and female with differing but complementary strengths and faults, with the hope that their best features will combine to create offspring that are true showstoppers.

GLOSSARY

airplane wing. See twisted wing

angel wing. See twisted wing

autosexing. Displaying clearly distinct sex-linked color characteristics by which straightbred males and females may easily be distinguished at the time of hatch; the term *autosex* differentiates sex-link purebreds from sex-link hybrids

basic molt. See eclipse molt

bean. Also called nail; a bean-shaped bump on the tip of a duck's upper bill

bib. An area of contrasting color on a duck's lower neck and upper breast

bill out. To use the bill to scoop feed out of the feeder or water out of the drinker

bloodline. See strain

bloom. Also called cuticle; the moist, protective coating on a freshly laid egg that dries so fast you rarely see it

brood. To incubate a nest of eggs and care for the resulting ducklings; also, the ducklings themselves

brooder. A mechanical device used to imitate the warmth and protection a mother hen gives her ducklings

broody. The urge to hatch eggs; also the mother hen

bumblefoot. An infected abscess at the bottom of the foot

candle. To examine the contents of an intact egg with a light

caruncles. Red fleshy lumps on the head, face, and neck of Muscovies

clutch. A batch of eggs that hatch together, either in a nest or in an incubator; also, all the eggs laid by a duck on consecutive days

crossbred. See hybrid

cuticle. See bloom

double-action latch. A door or gate closure requiring two different motions to open or close

drake. A male duck

duck. A member of the Anatidae family of waterfowl; specifically a female member

duckling. A baby duck

eclipse molt. Also called basic molt; the molt taking place when the breeding season is over, in which drakes take on the

same dull plumage coloration of the females

egg bound. Describes a duck that can't pass her egg

free choice. Describes rations to which ducks have access all day long

free range. Describes ducks that are allowed to roam and forage at will in an open area

hatching eggs. Eggs intended for hatching, rather than for culinary use

hybrid. Also called crossbred; the offspring of a hen and drake of different breeds, each of which may themselves be crossbred

incubate. To maintain favorable conditions for hatching fertile eggs

keel. The breastbone, which resembles the keel of a boat

layer ration. Commercially prepared feed that provides nutrients to meet the dietary needs of laying hens

molt. The shedding and renewing of a bird's feathers

nuptial molt. The molt preceding breeding season, resulting in a drake's more colorful feathers

old drake. A drake that's at least 1 year old

old duck. A duck that's at least 1 year old

oviduct. The tube-shaped organ inside a duck through which an egg travels on its way to being laid

pecking order. Social rank

perch. Also called roost; the place where Muscovies sleep at night; also, the act of resting on a perch

pinfeather. A newly emerging feather

pinion. To surgically remove the end segment of a wing

plumage. The complete set of feathers covering a duck

pophole. A small doorway through which ducks enter and exit their coop

poultry. Ducks and other domesticated birds that technically are raised for food

prolapse. Slipping of a body part from its normal position

roost. See perch

scratch. Any grain fed to poultry

set. To keep eggs warm until they hatch

setting. A group of hatching eggs in an incubator or under a hen; also, the incubation of eggs by a hen

sexed. Describes ducklings that have been sorted into males and females

sex feathers. The curled top feathers on a drake's tail that distinguish it as a male

sex link. A genetic trait carried on the sex chromosomes

slipped wing. See twisted wing

standard. The description of an ideal specimen for its breed; also, a duck that conforms to the description of its breed in the *American Standard of Perfection*; sometimes erroneously used when referring to large as opposed to bantam breeds

started. Describes a duck that has passed the brooding stage but is not yet fully mature

straightbred. Purebred

straight run. See unsexed

strain. Also called a bloodline; a flock of related ducks selectively bred by one person or organization for so long that the offspring have become uniform in appearance or production

twisted wing. Also called angel wing, airplane wing, crooked wing, slipped wing, and split wing; a defect in which the primary wing feathers twist outward

unsexed. Also called straight run or “as hatched”; describes ducklings that have not been sorted into males and females

variety. A subdivision of a duck breed based on differences in plumage color

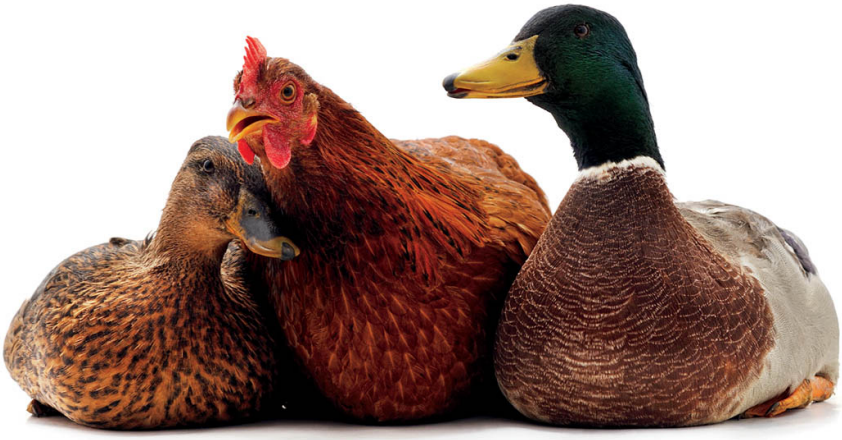
vent. The outside opening of the cloaca, through which a duck emits eggs and droppings from separate channels

vent sexing. Determining a duckling’s gender by examining its vent

web. The membranes between a duck’s toes

young drake. A drake that’s less than 1 year old

young duck. A duck that’s less than 1 year old



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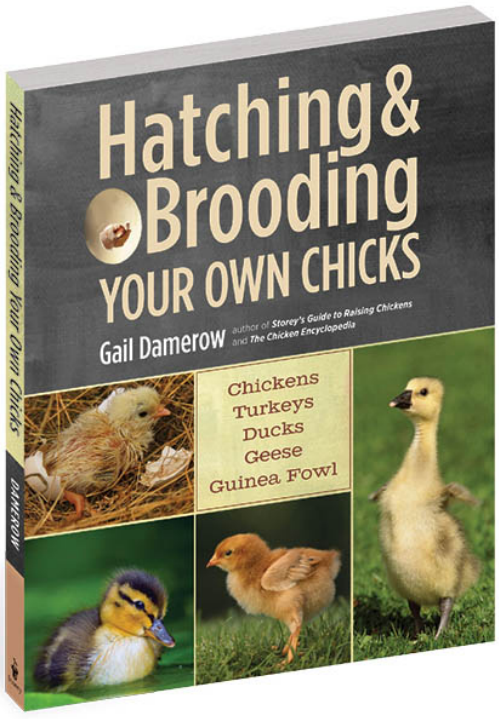

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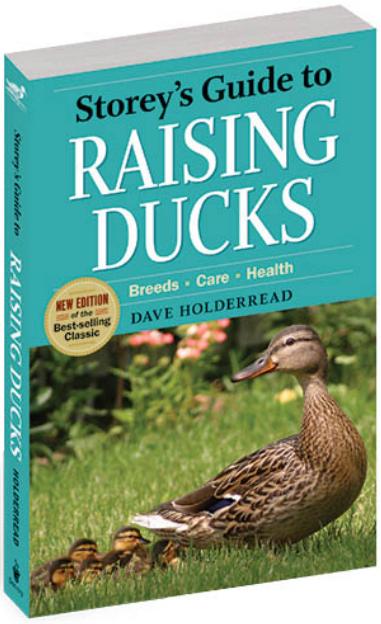

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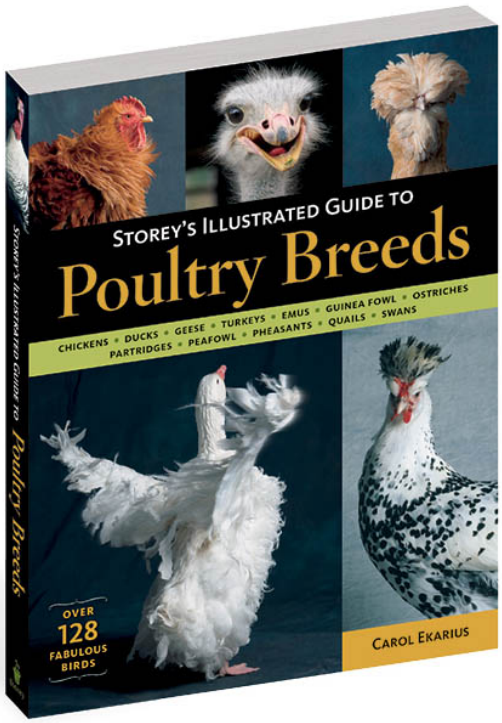
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